# AC Corporation

# Safety Manual

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# AC Corporation Safety Manual
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# AC Corporation

## Corporate Safety Policy Statement

The Occupational Safety and Health Act of 1970 clearly states our common goal of safe and healthful working conditions. The safety and health of our employees continues to be the first consideration in the operation of this business.

Safety and health in our business must be a part of every operation. Without question it is every employee's responsibility at all levels.

It is the intent of this company to comply with all laws. To do this we must constantly be aware of conditions in all work areas that can produce injuries. No employee is required to work at a job he or she knows is not safe or healthful. Your cooperation in detecting hazards and, in turn, controlling them is a condition of your employment. Inform your supervisor immediately of any situation beyond your ability or authority to correct.

The personal safety and health of each employee of this company is of primary importance. The prevention of occupationally-induced injuries and illnesses is of such consequence that it will be given precedence over operating productivity whenever necessary. To the greatest degree possible, management will provide all mechanical and physical facilities required for personal safety and health in keeping with the highest standards.

We will maintain a safety and health program conforming to the best management practices of organizations of this type. To be successful, such a program must embody the proper attitudes toward injury and illness prevention not only on the part of supervisors and employees, but also between each employee and his or her co-workers. Only through such a cooperative effort can a safety program in the best interest of all be established and preserved.

Our objective is a safety and health program that will reduce the number of injuries and illnesses to an absolute minimum, not merely in keeping with, but surpassing, the best experience of operations similar to ours. Our goal is nothing less than zero accidents and injuries.

David B. Nickell, President

## 1 PURPOSE AND SCOPE

### ■ Purpose

This procedure is to be used as a comprehensive instructional guide that applies to elevating articulating work platforms and vehicle-mounted or self-propelled aerial devices that are used to position personnel, along with their tools and necessary materials, to work locations.

### ■ Scope

This procedure applies to all AC Corporation personnel and subcontractors working on projects where aerial lifts safety requirements are applicable.

## 2 REFERENCES

- Title 29, Code of Federal Regulations, Parts 1910 and 1926, *Occupational Safety and Health Administration* (OSHA), U.S. Department of Labor.
- ANSI A92-2 (1979) for vehicle-mounted elevating and rotating platforms
- ANSI 92.6 (1979) for self-propelled elevating platforms

## 3 GENERAL

### EQUIPMENT INSTRUCTIONS AND MARKING

Each unit shall have a manual containing instructions for maintenance and operations. If a unit is able to be operated in different configurations, then these shall be clearly described, including the rated capacity of each configuration.

Each device placed in service shall have a conspicuously displaced legible plate or other legible marking verifying that the machine is designed and manufactured in accordance with specifications in conformance with 29CFR 1910.67.

- The above plate shall contain the following data, when applicable:
  - — Make, model, and manufacturer’s serial number
  - — Rated capacity
  - — Platform height and maximum travel height
  - — Maximum recommended operating pressure of hydraulic or pneumatic system(s) or both
  - — Caution or restrictions of operation or both
  - — Operating instructions
- All equipment platform rails shall have special marking black and yellow tape affixed to the outer handrail around all sides.
- All equipment shall have florescent illumination tape affixed to the counter weight.
- One 10-pound ABC fire extinguisher shall be mounted on wood-type board inside the platform basket. (Wood board will prevent grounding out of electrical controls during operation of unit.)

- All equipment tires are to be inflated to maximum manufacturers' recommendations.

■ **Definitions**

- Aerial Device - Any vehicle-mounted or self-propelled device, telescoping extensible or articulating or both which is primarily designed to position personnel.
- Articulating Boom - An aerial device with two or more hinged boom sections.
- Boom - An elevating member, the lower end of which is attached to a rotating or non-rotating base to permit elevation of the free or outer end in a vertical plane.
- Override - The taking over of primary control functions from a secondary location.
- Platform - Any personnel-carrying device (e.g., bucket, basket, cage, stand, tub) that is a component of an aerial device.
- Rated Work Load - The safe design live load carrying capacity of the work platform.
- Lower Level Controls - Controls installed on the lower level panel to override platform controls in case of an emergency.
- Fall Protection Equipment - A safety harness equipped with a fall arresting lanyard, to be worn by each person in the platform basket at all times.

■ **Responsibilities**

- The Job Site Superintendent or Foreman is responsible for implementing, enforcing and monitoring this procedure in their job site.
- The *Safety Director* is responsible for training compliance with this procedure.

## 4 PROCEDURE

- All employees must be checked out on this equipment by a designated competent person before being allowed to operate it; employees must be trained and must possess an operator's license. Training shall be documented and kept on file at the AC Corporation Headquarters.
- Read and obey all warning placards on the machines and become familiar with operator's manual.
- A malfunctioning lift shall not be operated until repaired as per manufacturer's recommendations.
- Equipment modification shall be approved, documented and certified by the manufacturer or an equivalent entity.
- The controls shall be plainly marked as to their function.
- Always do a pre-start checkout of machine. Do not use any machine having defects or malfunctioning parts.
- Make sure you are on level ground at all times when working equipment in the air. Platforms/baskets shall not be loaded in excess of the design-working load.
- Personnel's weight in baskets is counted as part of the load.

- Articulating boom platforms are not to be used as cranes. Lifting with baskets, handing chokers, and booms is not permitted.
- Always be sure that there is sufficient clearance before moving under any overhead obstruction and working near electrical lines; minimum 10-feet clearance.
- Do not walk under a boom to gain access to the platform.
- Do not tie the platform off to any structure for any reason.
- Do not stand on platform handrails; always stand on platform floor.
- Always look in the direction you are moving the machine.
- Do not rest a boom or basket on a steel structure of any kind.
- Safety harnesses must be worn and tied-off inside the platform.
- Platforms shall not be used as access to any structure. Stay in the basket at all times. Personnel may exit with prior approval from the discipline superintendent when all other means are evaluated and impractical, as long as continual tie-off is maintained. Variances will be issued as needed.
- The basket must be at its lowest possible elevation when moving machine.
- Use proper barricading and/or a flag person when operating in high traffic areas.
- Use proper care when dismounting from platform basket; do not jump out of the basket.
- Aerial baskets or platforms shall not be supported by adjacent structure(s) when workers are on the platform or in the basket while in an elevated position.
- Lift controls shall be tested in accordance with the manufacturer's recommendations or instructions prior to use to determine that such controls are in safe working condition.
- Only authorized persons shall operate an aerial device.
- Belting off to an adjacent pole, structure, or equipment while working from an aerial device shall not be permitted.
- Employees shall not sit or climb on the edge of the basket or use planks, ladders, or other devices to gain greater working height.
- Boom, basket, and platform load limits specified by the manufacturer shall not be exceeded.
- When elevating personnel with the vehicle stationary, the braking systems shall be set.
- Provided they can be safely installed, wheel chocks shall be installed before using an aerial device on an incline.

- When used, outriggers shall be positioned on pads or a solid surface. All outriggers shall be equipped with hydraulic holding valves or mechanical locks at the outriggers.
- Climbers shall not be worn while performing work from an aerial device.
- When an insulated aerial device is required, the aerial device shall not be altered in any manner that might reduce its insulating value.
- An aerial device truck shall not be moved when the boom is elevated in a working position with employees in the basket or platform except when all of the following are complied with:
- The equipment is specifically designed for this type of operation.
- All controls and signaling devices, including backup alarm, are tested and are in good operating condition.
- An effective communication system is maintained at all times between the basket or platform operator and where applicable, the vehicle operator.
- The route to be traveled is surveyed immediately prior to the work trip, checking for overhead obstruction; traffic; holes in the pavement, ground, or shoulder; ditches; slopes; etc. For areas that are not paved, a survey should be made on foot.
- The speed of the vehicle does not exceed 3 miles per hour.
- Both the driver and/or the elevated employee have been specifically trained for this type of work (towering) in accordance with the manufacturer's recommendations.
- Lower level controls shall not be operated unless permission has been obtained from the employee in the device, except in case of emergency.
- Before moving an aerial device for travel, the boom(s) shall be inspected to see that it is properly cradled and outriggers are in a stowed position.
- Employees in elevated aerial devices shall be secured to the boom, basket, or tub of the device through the use of a safety harness equipped with a shock absorber.

## 5 TRAINING

All employees must be trained in the operation and use of articulating booms (aerial devices) by a designated competent person before they are allowed to operate booms in any capacity. Personnel successfully completing training shall be issued a special decal to be affixed to the hard hat, making sure the decal is not obscured by other labels or decals. A record of each person completing training shall be retained at the Field Office.

A training outline will be used by the instructor during training sessions to cover all facets of articulating boom operations.

All person(s) receiving training shall perform the following:

- Hands-on operation of controls at the platform and lower level panel.
- Preoperational inspection of articulating unit, as well as a hands-on postoperational test to ensure competency of individual to operate aerial device.

- All person(s) must attend and perform all training requirements listed in this procedure. Training shall be documented and kept on file.

## 1 PURPOSE AND SCOPE

- **Purpose**

This program outlines safe work practices to follow to protect workers on construction sites from all electrical injuries resulting from possible equipment malfunctions, improper grounding, and defective electrical tools. It is the policy of AC Corporation that our employees follow safe work practices when performing work operations using extension cord sets and receptacles that are not part of a building or structure, as well as when using equipment connected by a cord and plug.

- **Scope**

This procedure applies to all AC Corporation personnel working on projects where Ground Fault Circuit Interrupters (GFCI's) are used.

## 2 REFERENCES

- OSHA 29 CFR 1926.404
- National Electric Code (NEC)

## 3 GENERAL

- **Responsibilities**

  - The *Site Foreman* will have the overall responsibility for implementing, enforcing, reviewing this procedure with jobsite employees and making available for review when requested.
  - The *Safety Director* or the Site Supervisor / Foreman is responsible for and monitoring compliance with this procedure.
  - The *Employee* is responsible for adhering to the procedures in this program.

### EQUIPMENT INSTRUCTIONS AND MARKING

AC Corporation shall be responsible for the safe condition of electrical tools and equipment used by its employees, including tools and equipment, which may be furnished by employees. After took and equipment selection and evaluation, equipment will be used and maintained in a safe condition. Foremen will ensure that equipment utilized at each job site is maintained in a safe condition.

- **Installation** – Equipment grounding conductors shall be installed as follows:

  - Boom All 120 volt single phase, 15- and 20- ampere receptacles shall be of the grounding type and their contacts shall be grounded by connection to the equipment grounding conductor of the circuit supply the receptacle in accordance with the applicable equipments of the National Electrical Code.
  - All 120-volt cords sets (extension cords) shall have an equipment grounding conductor which shall be connected to the grounding contacts of the connector(s) on each end of the cord.

- The exposed concurrent-carrying metal parts of the 120-volts cord and plug-connected tools and equipment that are likely to become energized shall be grounded in accordance with the applicable requirements of the National Electrical Code.

## Visual Inspection

Field employees shall be interested to visually inspect receptacle, flexible cord sets (extension cords), except those that are fixed and not exposed to damage and equipment connected by cord and plug before each day's use for external defects such as deformed or missing pins or insulation damage, the damaged item shall be taken out of service and tagged until tested and any required repairs have been made.

## Equipment Testing

All 120 volt, single phase, 15- and 20- ampere receptacles which are not a part of the permanent wiring of the building or structure, 120 volt flexible cord sets and 120 volt cord plug connected equipment required to be grounded shall be tested as follows:

- All equipment grounding conductors shall be tested for continuity and shall be electrically continuous.
- Each receptacle and attachment cap or plug shall be tested or correct attachment of the equipment grounding conductor. The equipment grounding conductor shall be connected to its proper terminal.

## Testing Schedule

All required tests shall be performed:

- Before first use.
- Before equipment is returned to service following any repairs.
- Before equipment is used after any incident which cam be reasonable suspected to have caused damaged (for example, when a cord set is run over).
- At intervals not to exceed 3 months, except that cord sets and receptacle which are fixed and not exposed to damage shall be tested at intervals not exceeding 6 months.

Test verification shall be by means of numeric or color-coded marking tape on the receptacle, cord set or equipment to identify that it has passed the test and to indicate the date (month or quarter) in accordance with Monthly Coding Schemes section.

**MONTHLY COLOR CODE SCHEME**

| Assured Equipment Grounding Conductor | | | |
|---|---|---|---|
| Month # | Month Tested | Color of Tape(s) to Apply to Cord | |
| 1 | January | **White** | |
| 2 | February | **White +** | **Yellow** |
| 3 | March | **White +** | **Blue** |
| 4 | April | **Green** | |
| 5 | May | **Green +** | **Yellow** |
| 6 | June | **Green +** | **Blue** |
| 7 | July | **Red** | |
| 8 | August | **Red +** | **Yellow** |
| 9 | September | **Red +** | **Blue** |
| 10 | October | **Orange** | |
| 11 | November | **Orange +** | **Yellow** |
| 12 | December | **Orange +** | **Blue** |

## ■ Power Tools and Accessories Selections, Evaluation and Condition

The greatest hazards posed by power tools usually result from misuse and or improper maintenance. Tools selection sometime is not considered a priority when arrangements are made to begin work. All employees will consider the following when selecting tools.

- Is the tool correct for the type of work to be performed?
- Are grounding methods sufficient when working in wet conditions?
- Is the grounding terminal present on the plug?
- Is the polarity of connections correct? No grounded conductor can be attached to any terminal of lead, which results in a reversed designated polarity.
- Are grounding terminals or grounding-type devices in receptacles, cord connectors or attachment plugs used for the intended purpose?
- Are grounding terminals or grounding-type devices in receptacles, cord connectors or attachment plugs defeated in any way?
- Are all receptacles and attachment caps or plugs tested correct attachment of the equipment-grounding conductor? The equipment-grounding conductor must be connected to its proper terminal.
- Are grounding terminals or grounding-type devices on receptacles, cord connectors or attachment plugs defeated in any way?

- Are all 12 volt, single-phase 15- and 20- ampere receptacles, outlets on construction sites, which are not a part of the permanent wiring of the building or structure equipped with approved ground-fault circuit interrupters for personnel protection?
- Are conductor uses as a grounded conductor identifiable and distinguishable from all other conductors?
- Is each cord set, attachment cap, plug and receptacle of cord sets and any equipment connected by cord and plug, visually inspected daily before use for external defects, such as deformed or missing pins or insulation damage and for indications of possible internal damage? (Exception -- cord sets and receptacles which are fixed and not exposed to damage).
- Is equipment found damaged or defective removed from service until repaired or replaced?
- Are guards installed properly and in good condition?
- Are all required test performed?
  - — Before first use;
  - — Before equipment is returned to service following repairs;
  - — Before equipment is used after any incident which can be reasonably suspected to have caused damage (for example, when a cord set is run over); and;
  - — At intervals not to exceed 3 months, except that cord sets and receptacles which are fixed and not exposed to damage muse be tested at intervals not to exceed 6 months.
- Are all required tests documented, maintained and include the following:
  - — Identity of the equipment having passed the test?
  - — The last date tested or the testing interval?
  - — Is the test documents maintained until replace by a more current record?
- Does the tool create sparks or heat? Has this been considered when working around flammable substances?
- Are the cutting tools sharp? Dull tools are more hazardous than sharp ones.
- Is the tool used on the proper working surface? Tools used on dirty or wet working surfaces can create a multitude of hazards.
- Are tools stored properly when not being used? Saw blades, and like sharp tools should be stored so that sharp edges are directed away from aisles and coworkers.

## ■ POWER TOOL PRECAUTIONS

Power tools can be hazardous when improperly used, this company several types. The following precautions will be taken by employees of this company to prevent injury.

- Powers tools will always be operated within their design limitations.
- Eye protection, gloves and safety footwear are recommended during operations.
- Tools will be stored in an appropriate dry location when not in use.
- Tool work will only be conducted in well-illuminated locations.
- Tools will not be carried by the cord or hose.
- Cord and hoses will not be yanked to disconnect it from the receptacle.
- Cords and hoses will be kept away from heat, oils and sharp edges or any other source that could result in damage.
- Tools will be disconnected when not in use, before servicing, and when changing accessories such as blades, bits and cutters.
- Observers will be kept at a safe distance at all times from the work area.
- Work will be secured with clamps or a vice where possible to free both hands to operate tool.
- Work will be secured with a clamps or a vice where possible to free both hands to operated tools.
- To prevent accidental starting, employees should be continually aware not to hold the start button while carrying a plugged-in tool.
- Tools will be maintained in a clean manner and properly maintained in accordance with the manufacturers guidelines.
- Ensure that proper shoes are worn and that the work area is kept clean to maintain proper footing and good balance.
- Ensure that proper apparel is worn. Loose clothing, ties or jewelry can become caught in moving parts.
- Tools that are damaged will be removed from service immediately and tagged “Do Not Use”. They will be reported and turned over to the shop for repair or replacement.
- Cracked saws – All cracked saws will be removed from service.

## ■ METHODS OF GUARDING

One or more methods of guarding shall be provided where required to protect the operator and other employees in the area from hazards such as those created by point of operation, in-running nip points, rotating parts, flying chips and sparks. Examples of guarding methods are: barrier guards, two-hand tripping devices, electronic safety devices, etc. The guard shall be such that it does not offer an accident hazard in itself. Employee’s will:

- Inspect tools without guards for signs of guard removal, if it is evident that a guard is required. Tag-out the tools and obtain a replacement. Tools will not be energized during inspection.
- Inspect tools having guards for proper operation and maintenance prior to use. Tools will not be energized during inspection.
- Never remove a guard during use.

## 4 TRAINING

### ■ INITIAL TRAINING

Training shall be conducted prior to job assignment. AC Corporation shall provide training to ensure that the grounding requirements, purpose, function and proper use of tools to be used in the normal function of their jobs is understood by employees and that the knowledge and skills required for the safe application and usage is acquired by employees. This standard practice instruction shall be provided to and read by al employees receiving training. The training shall include, at a minimum the following:

- Grounding requirements for tools and associated site electrical equipment.
- Types of tools appropriate for use.
- Recognition of applicable electrical hazard associated with work to be completed.
- Tool selection requirements.
- Procedures for removal of an electrical tool/associated from service.
- All other employees whose work operations are or may be in an area where tools which could present a hazard to other than used, will be instructed to an awareness level concerning hazards.
- Tools identification. Tools having numbers will be checked for legibility.
- Certification. AC Corporation shall certify that employees training has been accomplished and is being kept up to date. The certification shall contain each employee's name and date of training.

### ■ REFRESHER TRAINING

This standard practice instruction shall be provided to and read by all employees receiving refresher training. The training content shall be identical to initial training. Refresher training will be conducted on as required basis or when the following conditions are met, whichever event occurs sooner.

- Retraining shall be provided for all authorized and affected employees whenever (and prior to) there being a change in their job assignment, a change in the type of tools used or when a known hazard is added to the work environment.
- Additional retraining shall also be conducted whenever a periodic inspection reveals of whenever AC Corporation has reason to believe that there are deviations from or inadequacies in the employee's knowledge or use of tools.

- The retraining shall re-establish employee proficiency and introduce new or revised methods and procedures, as necessary.
- Certification. AC Corporation shall certify that employees training has been accomplished and is being kept up to date. The certification shall contain each employee's name and date of training.

## 1 PURPOSE AND SCOPE

- **Purpose**

  This process establishes procedures for the medical treatment guidelines to eliminate or minimize exposure occupational exposure to blood and other potentially infectious fluids or materials to employees.

- **Scope**

  This procedure applies to all AC Corporation employees who provide healthcare, medical emergency response, and custodial services, who could have contact with blood and other potentially infectious materials as a result of performing their job duties and the lay employee as awareness.

## 2 REFERENCES

- 29CFR 1910.1030, Bloodborne pathogens

**EXPOSURE CONTROL PLAN**
**EXPOSURE DETERMINATION INFORMATION**
**(w/o PPE)**

| JOB CLASSIFICATION | SOME EXPOSURE | NO EXPOSURE |
|---|---|---|
| First Aid/CPR Certified Personnel | X | |
| Safety Representative | X | |
| Custodian/Maintenance Personnel | X | |
| All Other AC Corporation Personnel (Good Samaritans) | | X |

## 3 GENERAL

On December 6, 1991, the Occupational Safety and Health Administration (OSHA) published the "Occupational Exposure to Bloodborne Pathogens" Standard. The purpose of this regulation is to eliminate or minimize occupational exposure to bloodborne pathogens. The Bloodborne Pathogen Standard applies to facilities or operations where exposure to human blood or other potentially infectious materials is possible. The original thrust of the regulation was aimed at healthcare facilities such as:

- Hospitals
- Clinics
- Nursing homes/long-term care facilities
- Medical laboratories
- Blood bank and plasma centers

However, the Standard also affects virtually all-industrial facilities, since many employees are periodically exposed to blood or blood contaminated materials in a number of situations, including:

- As internal "first responders" on Hazmat Teams, Fire Brigades, First Aid Teams, etc.
- Cleaning up first aid and rescue equipment after it has been used.
- In company medical or first aid offices.
- Through trash containing contaminated band-aids, bandages, and feminine hygiene products.
- During cleanup of the industrial accidents where employees have been injured.

Bloodborne pathogens are microorganisms in human blood that can cause disease in humans. They include the Hepatitis-B Virus (HBV) and the Human Immunodeficiency Virus (HIV), which causes AIDS.

Occupational transmission of HIV is relatively rare, but the lethal nature of HIV requires that we take every possible measure to prevent exposure. The greatest bloodborne risk workers face is the threat of infection posed by Hepatitis-B Virus (HBV).

Implementation of engineering controls, work practices, and personal protective equipment, coupled with employee training, will reduce on-the-job risks for all employees exposed to blood or other potentially infectious materials.

### ■ Responsibilities

- The Job Site Superintendent or Foreman is responsible for implementing, enforcing and monitoring this procedure in their job site.
- The *Safety Director* is responsible for training compliance with this procedure.
- AC Corporation's medical services provider is responsible for maintaining all medical records.

## 4 PROCEDURE

The Exposure Control Plan meets the letter and intent of the OSHA Bloodborne Pathogens Standard. The objective of this plan is twofold:

— To protect our employees from the health hazards associated with bloodborne pathogens.

— To provide appropriate treatment and counseling should an employee be exposed to bloodborne pathogens.

### ■ Methods of Compliance

- Universal Precautions shall be observed by personnel to prevent contact with blood or other potentially infectious materials. In accordance with the concept of Universal Precautions, personnel shall treat blood and other potentially infectious materials as though potentially infected with HBV, HIV, or other bloodborne

pathogens, particularly under circumstances in which differentiation between body fluid types is difficult or impossible.

- All personnel identified in this procedure as having occupational exposure shall observe Universal Precautions in accordance with this procedure.

■ **Engineering and Work Practice Control**

- AC Corporation shall provide training and monitoring of proper work practices, and instruct workers in performing all tasks using appropriate precautions, engineering and work practice controls, and personal protective equipment.
- Food and drink shall not be kept in refrigerators, freezers, shelves, or cabinets or on countertops or bench tops where blood or other potentially infectious materials are present.
- Equipment contaminated with blood or other potentially infectious materials shall be examined prior to servicing or shipping and shall be decontaminated.

■ **Personal Protective Equipment**

- Where there is potential for occupational exposure, AC Corporation shall provide, at no cost to the employee, appropriate personal protective equipment such as, but not limited to, gloves, and eye protection.
- AC Corporation shall provide for training and instruction on the proper use and limitations of personal protective equipment and shall enforce its proper use.

■ **Regulated Waste**

Specimens of blood or other potentially infectious materials, contaminated or potentially contaminated laundry shall be placed in leak proof bags for handling, storage and transported in bags or containers labeled or color-coded in accordance with this procedure. However, when a facility utilizes Universal Precautions in the handling of all soiled laundry, alternative labeling or color-coding is sufficient if it permits all employees to recognize the containers as requiring compliance with Universal Precautions.

■ **Post-Exposure Evaluation and Follow-Up**

- AC Corporation shall make available the Hepatitis-B vaccine and vaccination series and post-exposure evaluation and follow-up, to all employees who have had an exposure incident.
- AC Corporation shall ensure that all medical evaluations and procedures, including the Hepatitis-B vaccine and vaccination series and post-exposure evaluation and follow-up, are as follows:
  - — Made available at no cost to the employee.
  - — Made available to the employee at a reasonable time and place.
  - — Performed by or under the supervision of a licensed physician or under the supervision of another licensed healthcare professional.

- Records are maintained for 30 years after employment.

## Reporting Occupational Exposure

- Employees shall report all occurrences of occupational exposure as soon as feasible after the exposure. AC Corporation will initiate the post-exposure evaluation and follow-up process in response to reports of occupational exposure.
- The following steps shall be taken in reporting occupational exposure to bloodborne pathogens or other potentially infectious materials:
  - Employees shall notify their immediate supervisor as soon as feasible following an exposure incident.
  - Employees shall complete an occupational exposure report (AC Corporation Accident/Injury Report).
  - Employees shall sign the occupational exposure report and give the signed and completed form to the Safety Director or Human Resource Coordinator for review and sign-off.

## Post-Exposure Evaluation and Follow-Up

- Following a report of an exposure incident, AC Corporation shall immediately offer the exposed employee confidential medical evaluation and testing.
- Post-exposure evaluation and follow-up shall consist of at least the following elements:
  - Documentation of the route(s) of exposure.
  - Identification, documentation, and testing of the source individual, unless the employer can establish that identification is infeasible or prohibited by state or local law.
  - Counseling.
  - Evaluation of reported illnesses.
  - Collection and testing of blood for HBV and HIV serological status.
- If the employee consents to baseline blood collection, but does not give consent at that time for HIV serological testing, the sample shall be preserved for at least 90 days. If, within ninety (90) days of the exposure incident, the employee elects to have the baseline sample tested, such testing shall be done as soon as feasible.
- After obtaining the exposed employee's consent for follow-up testing, a sample of his/her blood shall be collected and tested for HBV and/or HIV as soon as feasible following the exposure incident. The sample should be collected and tested within 30 days of the exposure incident.
- Post-exposure evaluation and follow-up shall also include:
  - Counseling.
  - Evaluation of reported illnesses.

- Following post-exposure evaluation and follow-up, the exposed employee shall be provided with a copy of the evaluating healthcare professional's written opinion.

## 5 INFORMATION AND TRAINING

- Communicating hazards to employees and providing training and information are paramount in the implementation of this procedure since protective measures such as personal protective equipment and proper work practices will not be effective unless employees are instructed in their correct use. Training is also an important factor in risk reduction because not all employees are aware of the risks that they face in the workplace.
- Training records include the following: Dates and Contents of Training, Names and Job Titles of persons attending.
- Training records shall be maintained for 3 years from the date of training and medical records are maintained for at least the duration of employment plus 30 years.
- Records shall be made available whenever an employee or designated representative requests access to a record, AC Corporation shall assure that access is provided in a reasonable time, place, and manner.
- In the case the AC Corporation cease to do business, AC Corporation shall transfer all records subject to the successor employer, where the successor employer shall receive and maintain these records.
- AC Corporation shall be responsible to ensure that training is provided as follows:
  - At the time of initial assignment.
  - At least annually thereafter.
- Annual training for all employees shall be provided within one (1) year of their previous training.
  - An accessible copy of the regulatory text of 29 CFR 1910.1030 and an explanation of its contents.
  - A general explanation of the epidemiology, symptoms, and modes of transmission of bloodborne pathogens and diseases.
  - An explanation of AC Corporation's exposure control plan and the means by which the employee can obtain a copy of the written plan.
  - An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials.
  - An explanation of the use and limitations of methods that will prevent or reduce exposure, including appropriate engineering controls, work practices, and personal protective equipment and clothing.

- An explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available.
- Information on the post-evaluation and follow-up that AC Corporation is required to provide for the employee following an exposure incident.
- An explanation of the signs and labels and color-coding system being utilized by AC Corporation as defined in this procedure.
- An opportunity for interactive questions and answers with the trainer.

- The person conducting the training shall be knowledgeable in the subject matter covered by the elements contained in the training program as it relates to the workplace that the training will address.
- The person conducting the training shall be required to ensure that the training program and training records meet the requirements of, and are maintained in accordance with, 29 CFR1910.1030 and this procedure.

# AC CORPORATION
# EXPOSURE CONTROL PLAN
# HEPATITIS-B VACCINATION CONSENT FORM

I, _____ (print name), understand that due to my occupational exposure to blood or other potentially infectious materials, I may be at risk of acquiring Hepatitis-B virus (HBV) infection. I have been given the opportunity to be vaccinated with Hepatitis-B vaccine, at no charge to me. I understand that vaccination is voluntary and that I have a right to decline vaccination at this time and have the option of being vaccinated in the future, at no charge to me, should I change my mind. I further understand that the vaccine listed below must be given in the time sequences noted, that additional information will be provided upon request, and that this vaccine is generally well tolerated, but side effects are possible.

I certify that I have been given the opportunity to have any questions I may have concerning the vaccine answered. I have made AC Corporation aware of any immunization reactions that I have had in the past and certify that I am not, to the best of my knowledge, allergic to yeast.

I hereby give my consent to three injections of the Hepatitis-B Vaccine, Recombivax H.B. (HBV Recombivax MSD) Hepatitis-B vaccine at intervals of zero, 1 month, and 6 months, and understand that I am required, by OSHA regulation 29 CFR 1910.1030, Occupational Exposure to Bloodborne Pathogens, Final Rule, to certify my decision by signing this consent form.

_____
Signature

_____
Social Security Number

_____
Date

*Medical records will be maintained by the Licensed Health Care Provider*

**EXPOSURE CONTROL PLAN**
**HEPATITIS-B VACCINATION DECLINATION FORM**

I, _____ (print name), understand that due to my occupational exposure to blood or other potentially infectious materials, I may be at risk of acquiring Hepatitis-B virus (HBV) infection. I have been given the opportunity to be vaccinated with Hepatitis-B vaccine, at no charge to me. I understand that vaccination is voluntary and that I have a right to decline vaccination at this time and have the option of being vaccinated in the future should I change my mind. I further understand that I continue to be at risk of acquiring Hepatitis-B, a serious disease, and that if in the future I continue to have occupational exposure to blood or other potentially infectious materials and want to be vaccinated with Hepatitis-B vaccine, I can receive the vaccine series at no charge to me.

I certify that I have been given the opportunity to have any questions I may have concerning the vaccine answered. However, I decline Hepatitis-B vaccination at this time. I further understand that I am required, by OSHA regulation 29 CFR 1910.1030, Occupational Exposure to Bloodborne Pathogens, Final Rule, to certify my decision by signing this declination form.

_____
Signature

_____
Social Security Number

_____
Date

**EXPOSURE CONTROL PLAN**
**EMPLOYEE REPORT OF OCCUPATIONAL EXPOSURE**

EXPOSURE INCIDENT REPORT NUMBER DATE OF REPORT TIME OF REPORT

EMPLOYEE'S LAST NAME FIRST NAME MI SOCIAL SECURITY NUMBER

IS TIME LOST FROM WORK EXPECTED BECAUSE OF INJURY OR ILLNESS? ☐ YES ☐ NO EMPLOYMENT STATUS ☐ PERMANENT ☐ CONTRACT DATE EMPLOYED EMPLOYEE NUMBER

OCCUPATION OR JOB TITLE WAS EMPLOYEE WORKING IN OCCUPATION OR JOB TITLE WHEN INJURED? ☐ YES ☐ NO DATE OF BIRTH AGE SEX

EMPLOYED AT (DEPARTMENT AND LOCATION) PERSON IN CHARGE OF WORK AT THE TIME OF INCIDENT

NAMES OF WITNESSES WORK LOCATION OF WITNESSES EMPLOYEE (Yes or No)

PLACE OF INCIDENT DATE OF INCIDENT TIME OF INCIDENT

NATURE OF INJURY/ILLNESS

DETAILS OF EXPOSURE INCIDENT - IDENTIFY TYPE OF EXPOSURE, FREQUENCY, DURATION, INTENSITY, AND ROUTE(S) OF EXPOSURE

PARTS(S) OF BODY AFFECTED

TREATMENT RECEIVED FOLLOWING INCIDENT

HAS EMPLOYEE RECEIVED HEPATITIS B (HBV) VACCINATION? ☐ YES ☐ NO
APPROXIMATE DATE VACCINATION WAS RECEIVED

IS NAME OF SOURCE INDIVIDUAL KNOWN ☐ YES ☐ NO
NAME OF SOURCE INDIVIDUAL

NAME OBJECT, MACHINE, TOOL, OR SUBSTANCE WHICH DIRECTLY EXPOSED EMPLOYEE

BRIEF DESCRIPTION OF INCIDENT

HAZARDOUS CONDITION - IDENTIFY THE HAZARDOUS PHYSICAL CONDITION OR CIRCUMSTANCE WHICH PERMITTED OR OCCASIONED THE INCIDENT

AGENCY OF THE INCIDENT - IDENTIFY THE OBJECT, SUBSTANCE, OR PREMISES IN OR ABOUT WHICH THE PREVIOUS NAMED HAZARDOUS CONDITION EXISTED

UNSAFE ACT - IDENTIFY THE VIOLATION OF A COMMONLY ACCEPTED SAFE PROCEDURE WHICH DIRECTLY PERMITTED OR OCCASIONED THE ACCIDENT IF ANY

WERE ENGINEERING, WORK PRACTICE CONTROLS, AND PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING IN USE AT TIME OF INCIDENT?
☐ YES ☐ NO IF NOT, WHY NOT?

BASIC CAUSE OF THIS INCIDENT

HOW COULD THIS INCIDENT HAVE BEEN PREVENTED?

ACTION TO BE TAKEN OR RECOMMENDED TO PREVENT RECURRENCE OF THIS TYPE OF INCIDENT

EMPLOYEE'S SIGNATURE DATE SUPERVISOR'S SIGNATURE DATE

## EXPOSURE CONTROL PLAN
## INSTRUCTIONS FOR REPORTING OCCUPATIONAL EXPOSURE INCIDENTS

1. An exposed employee shall notify his/her immediate supervisor that an occupational exposure incident has occurred as soon as feasible following the exposure incident.

2. The employee shall complete an Employee Report of Occupational Exposure Form, sign the report, and forward the report to his/her immediate supervisor for review and sign-off.

3. The employee's supervisor shall, immediately upon being notified by the employee, contact the General Contractor Office Manager and AC Corporation Safety Director, or designee, to advise him/her that an occupational exposure incident has occurred and that post-exposure evaluation and follow-up are necessary.

   The employee's supervisor shall review, sign-off, and immediately forward the original Employee Report of Occupational Exposure Form to the AC Corporation Safety Director or designee, for use during the post-exposure evaluation and follow-up, since the report contains information critical to the conduct of the evaluation.

4. The Medical Advisor, or designee, upon being notified that post-exposure evaluation and follow-up are necessary, shall assure that an appointment is scheduled for evaluation of the exposed employee as soon as feasible following the exposure incident.

5. The employee shall be required to cooperate with the medical evaluation, information gathering, engineering and work practices review, and the follow-up components of the post-exposure evaluation; however, post-exposure testing of the employee shall be optional. Employees who refuse post-exposure testing shall be required to sign a declination form.

6. The Safety Director, or designee, shall conduct a post-exposure evaluation as soon as feasible following the exposure incident.

   The Safety Director, or designee, shall conduct the post-exposure evaluation and follow-up and provide the exposed employee with information and reports as required by the AC Corporation Exposure Control Plan.

## 1 PURPOSE AND SCOPE

### Purpose

This procedure provides the mandatory safety guidelines to open, enter, and perform work within confined spaces.

### Scope

This procedure applies to all AC Corporation personnel and subcontractors working on projects where confined space entry safety requirements are applicable.

## 2 REFERENCES

Title 29, Code of Federal Regulations, Parts 1910.146 and 1910.1200, and 1926.21, *Occupational Safety and Health Administration* (OSHA), U.S. Department of Labor.

## 3 GENERAL

The hazards encountered and associated with opening, entering, and performing work within confined spaces are capable of causing bodily injury, illness, and death to workers. Accidents occur among workers because of failure to recognize that a confined space is a potential hazard. It must therefore be considered that the most unfavorable situation exists in every case and that the dangers of toxic substances, explosions, and asphyxiation will be present at the onset of entry to all confined spaces. Because of the potential hazards associated with confined spaces, a Confined Space Entry Permit is required to enter any confined space.

### Responsibilities

- The Job Site Superintendent or Foreman is responsible for implementing, enforcing and monitoring this procedure in their job site.
- The *Safety Director* is responsible for training compliance with this procedure.
- The *Employee* is responsible for working within their qualifications and following AC Corporation procedures.

## 4 PROCEDURE

### General Requirements

- This procedure is intended to protect workers from toxic, explosive, or asphyxiating atmospheres and from possible engulfment from liquids or finely divided (flowable) solid substances. It focuses on areas with potential health or safety risks, denoting these as "permit-required" confined spaces.
- **ALL CONFINED SPACES WILL REQUIRE A PERMIT PRIOR TO ENTRY.**
- AC Corporation shall inform all employees, subcontractors, vendors, and visitors of confined spaces through training and by posting danger signs at each confined space. Typical signage reads:

**DANGER**
**PERMIT REQUIRED**
**CONFINED SPACE**
**DO NOT ENTER**

- When AC Corporation arranges to have employees of another company (subcontractor) perform work that involves confined space entry, AC Corporation shall, inform the subcontractor that the workplace is a confined spaces and that confined space entry is allowed only through compliance with a confined space program meeting the requirements of this procedure.
- This procedure, as well as jobsite-specific confined space entry procedures and programs, shall be available for review by employees and their authorized representatives.
- Any condition making it unsafe to remove an entrance cover shall be eliminated before the cover is removed or the plain is broken.
- When entrance cover is removed, the opening shall be promptly guarded by a railing, temporary cover, or other temporary barrier that will prevent an accidental fall through the opening and that will protect each

## Confined Space Program Requirements

- Effective measures shall be taken by AC Corporation supervision to ensure that unauthorized individuals do not enter confined spaces.
- The hazards of confined spaces shall be identified and evaluated before employees are allowed to enter them.
- Attendant shall only monitor a single confined space at any given time.
- The means, procedures, and practices necessary for safe confined space entry operations shall be developed and implemented, including, but not limited to, the following:
- The following equipment shall be provided at no cost to employees, maintained properly, and used as required:
  - Testing and monitoring equipment needed to identify and evaluate atmospheric hazards.
  - Ventilating equipment needed to obtain acceptable entry conditions.
  - Communication equipment necessary to provide communications between the attendant and entrants, and for summoning rescue and emergency.
  - Personal protective equipment when feasible engineering and work practice controls do not adequately protect employees.
  - Lighting equipment needed to enable employees to see well enough to work safely and to exit the space quickly in an emergency.

- Barriers and shields to protect entrants from external hazards, i.e., pedestrians and vehicles
- Equipment services.
- Such as ladders, needed for safe ingress and egress by authorized entrants.
- Rescue and emergency equipment needed to rescue entrants from confined spaces.
- Any other equipment necessary for safe entry into and rescue from confined spaces.

- Confined space conditions shall be evaluated as follows when entry operations are conducted:
  - Test conditions in the confined space to determine whether acceptable entry conditions exist before entry is authorized to begin, except that, if isolation of the space is unfeasible because the space is large or is part of a continuous system (such as a sewer), pre-entry testing shall be performed to the extent feasible before entry is authorized and, if entry is authorized, entry conditions shall be continuously monitored in the areas where authorized entrants are working.
  - Test or monitor the confined space as necessary to determine whether acceptable entry conditions are being maintained during the course of entry operations.
  - When testing for atmospheric hazards, test first for oxygen, then for combustible gases and vapors, and then for toxic gases and vapors.
  - At least one attendant shall be provided outside the confined space into which entry is authorized for the duration of the entry operation.
  - Individuals designated as entrants, attendants, entry supervisors, or persons who test or monitor the atmosphere in a confined space shall understand his/her duties and undergo training as required.
  - Procedures for summoning rescue and emergency services, for rescuing entrants from confined spaces, for providing necessary emergency services to rescued employees, and for preventing unauthorized personnel from attempting a rescue shall be developed and implemented.
  - A system for the preparation, issuance, use, and cancellation of entry permits shall be developed and implemented as required by the procedure.
  - Procedures shall be developed to coordinate entry operations when employees of more than one employer are working simultaneously as authorized entrants in a confined space, so that employees of one employer do not endanger the employees of any other employer.

- Procedures shall be developed and implemented (such as closing off a permit space and canceling the permit) as necessary for concluding the entry after entry operations have been completed.
- Entry operations shall be reviewed when AC Corporation has reason to believe that the measures taken under the confined space program may not protect employees and the program shall be revised to correct deficiencies found to exist before subsequent entries are authorized.
- Examples of circumstances requiring the review of the confined space program are:
- Any unauthorized entry of a confined space.
- The detection of a confined space hazard not covered by the permit.
- The detection of a condition prohibited by the permit.
- The occurrence of an injury or near-miss during entry.
- A change in the use or configuration of a confined space.
- Employee complaints about the effectiveness of the program.

- AC Corporation shall conduct an annual review of the confined space program, using the canceled permits retained to ensure that employees participating in entry operations are protected from confined space hazards.

■ **Confined Space Permit System**

- Prior to authorized entry into a confined space, AC Corporation employee(s) shall document the completion of measures required by this procedure by preparing an entry permit.
- Before entry begins, the entry supervisor, identified on the confined space entry permit, shall sign the permit to authorize entry.
- The completed confined space entry permit shall be made available to all authorized entrants at the time of entry, by posting it at the entry portal.
- The duration of the confined space entry permit may not exceed the time required to complete the assigned task or job identified on the permit.
- AC Corporation's entry supervisor shall terminate entry and cancel the confined space entry permit when:
  - The entry operations covered by the permit have been completed.
  - A condition that is not allowed under the permit arises in or near the confined space.
- AC Corporation shall retain each canceled confined space entry permit for at least one year to facilitate the review of the confined space program required by this procedure. Any problems encountered during an entry operation shall be noted on

the pertinent permit so that appropriate revisions to the confined space program can be made.

- **Confined Space Entry Permit**

The confined space entry permit that documents compliance with this section and authorizes entry to confined space shall identify the following:

- The permit space to be entered.
- The purpose of the entry.
- The date and the authorized duration of the confined space entry permit.
- The name of all authorized entrants within the confined space.
- The name of the person(s) serving as attendants.
- The individual, by name, currently serving as entry supervisor, with a space for the signature or initials of the entry supervisor who originally authorized the confined space entry.
- The hazards of the confined space to be entered.
- The measures used to isolate the confined space and to eliminate or control confined space hazards before entry (those measures can include the lockout or tagging of equipment and procedures for purging, inerting, ventilating, and flushing permit spaces).
- The acceptable entry conditions.
- The results of initial and periodic tests performed, accompanied by the names or initials of the tester and by an indication of when the tests were performed.
- The rescue and emergency services that can be summoned and the means (such as the equipment to use and the numbers to call) for summoning those services.
- The communication procedures used by authorized entrants and attendants to maintain contact during entry.
- Equipment, such as personal protective equipment, testing equipment, communication equipment, alarm systems, and rescue equipment, to provide for compliance with this section.
- Any other information whose inclusion is necessary, given the circumstances of the particular confined space, to ensure employee safety.
- Any additional permits, such as for hot work or excavation, that have been issued to authorize work in the confined space.

## 5 TRAINING

- **Confined Space Entry Training**

- Training shall be provided so that all employees whose work is regulated by this procedure acquire the understanding, knowledge, and skills necessary for the safe performance of the duties assigned while working within a confined space.

- Training shall be provided to each affected employee as follows:
  - — Before the employee is assigned duties requiring him or her to work within a confined space.
  - — Before there is a change in assigned duties of employees required to work within a confined space.
  - — Whenever there is a change in confined space operations that present a hazard about which an employee has not previously been trained.
  - — Whenever the employer has reason to believe either that there are deviations from the confined space entry procedures or that there are inadequacies in the employee's knowledge or use of these procedures.
- The training shall establish employee proficiency in performing work within confined spaces and shall be revised, as necessary, for compliance with this procedure.
- AC Corporation shall certify that the training has been accomplished. The certification shall contain each employee's name, the signature or initials of the trainer, and the dates of training. The certification shall be available for inspection by employees and their authorized representatives.
  - — All personnel who will perform gas testing shall be trained on:
    - o Care, use and limitations of each instrument
    - o Field calibration
    - o Instrument trouble shooting
    - o Basic gas testing procedures

■ **Duties**

- Authorized entrants shall:
  - — Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.
  - — Properly use equipment as required.
  - — Communicate with the attendant, as necessary, to enable the attendant to monitor entrant status and to enable the attendant to alert entrants of the need to evacuate the confined space as required.
  - — Alert the attendant whenever:
  - — The entrant recognizes any warning signs or symptom of exposure to a dangerous situation.
  - — The entrant detects a prohibited condition.
  - — Exit from the permit space as quickly as possible whenever:
  - — An order to evacuate is given by the attendant or the entry supervisor.

- The entrant recognizes any warning sign or symptom of exposure to a dangerous situation.
- The entrant detects a prohibited condition.
- An evacuation alarm is activated.

- Authorized attendants shall:
  - Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.
  - Be aware of possible behavioral effects of hazard exposure in authorized entrants.
  - Continuously maintain an accurate count of authorized entrants in the confined space and ensure that the means used to identify authorized entrants accurately identifies who is in the confined space.
  - Remain outside the permit space during entry operations until relieved by another attendant.
  - Communicate with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the space.
  - Monitor activities inside and outside the space to determine whether it is safe for entrants to remain in the space and order the authorized entrants to evacuate the confined space immediately under any of the following conditions:
    - If the attendant detects a prohibited condition.
    - If the attendant detects the behavioral effects of hazard exposure in an authorized entrant.
    - If the attendant detects a situation outside the space that could endanger the authorized entrants.
    - If the attendant cannot effectively and safely perform all of the duties required.
  - Summon rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from confined space hazards.
  - Take the following actions when unauthorized persons approach or enter a permit space while entry is underway:
    - Warn the unauthorized persons that they must stay away from the confined space.
    - Advise the unauthorized persons that they must exit immediately if they have entered the confined space.
    - Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the confined space.

- Perform non-entry rescues as specified by AC Corporation's rescue procedures.
- Perform no duties that might interfere with the attendant's primary duty to monitor and protect the authorized entrants.

- Entry supervisors shall:
  - Know the hazards that may be faced during confined space entry, including information on the mode, signs or symptoms, and consequences of the exposure.
  - Verify, by checking that the appropriate entries have been made on the confined space entry permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin.
  - Terminate the entry and cancel the permit as required.
  - Verify that rescue services are available and that the means for summoning them are operable.
  - Remove unauthorized individuals who enter or who attempt to enter the permit space during entry operations.
  - Determine, whenever responsibility for a permit space entry operation is transferred and at intervals dictated by the hazards and operations performed within the confined space, that entry operations remain consistent with terms of the Confined Space Entry Permit and that acceptable entry conditions are maintained.

## Emergency Services

The following requirements apply when AC Corporation employees enter confined spaces to perform rescue services:

- To facilitate non-entry rescue, retrieval systems or methods shall be used whenever an authorized entrant enters a confined space, unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant. Retrieval systems shall meet the following requirements:
  - Each authorized entrant shall use a chest or full body harness, with a retrieval line attached at the center of the entrant's back near shoulder level or above the entrant's head. Wristlets may be used in lieu of the chest or full body harness if it can be demonstrated that the use of a chest or full body harness is unfeasible or creates a greater hazard and that the use of wristlets is the safest and most effective alternative.
  - The other end of the retrieval line shall be attached to a mechanical device or fixed point outside the confined space in such a manner that rescue can begin as soon as the rescuer becomes aware that rescue is necessary. A mechanical device shall be available to retrieve personnel from vertical-type permit spaces more that 5-ft deep.

- If an injured entrant is exposed to a substance for which a Material Safety Data Sheet (MSDS) or other similar written information is required to be kept at the work site, that MSDS or written information shall be made available to the medical facility treating the exposed entrant.

## Deviations

Deviations from any of the requirements of, or any questions as to the adequacy of planned safety measures for, confined space work shall be approved by the Safety Representative or designee.

**Confined Space Entry**

**Permit**

*Acknowledgment*

*This document describes the procedures developed to protect personnel involved directly and indirectly with Confined Space Entry.*

*AC Corporation will review the checklist within this Confined Space Entry Permit before each entry.*

*Each person involved with the confined space entry will meet the training requirements established by OSHA in 29 CFR 1910.146, entitled "Confined Space" and AC Corporation's Standard Operating Procedures.*

*All personnel, clients and contractors will sign this permit as an acknowledgment of the training requirements, job specifics and hazards involved.*

CLIENT INFORMATION

Date _____ JOB NUMBER _____

FACILITY NAME: _____

ADDRESS: _____

SITE CONTACT: _____

TELEPHONE NO: _____

EFFECTTIVE DATE OF PERMIT: ___/____/_____

Start Time: _____ Completion Time: _____
Not to exceed 1-shift

**2. DESCRIBE CONFINED SPACE AND TYPE OFWORK TO BE DONE**

_____

_____

_____

_____

**3. LOCK OUT TAG OUT** (check all that apply and initial)

| Check | Initial |
|---|---|
| ( ) Pipes Blanked | _____ |
| ( ) Valves Locked Out | _____ |
| ( ) Drains & Vents Blanked | _____ |
| ( ) Power Off -Locked and Tagged | _____ |
| ( ) Motors & Fans -Locked and Tagged | _____ |
| ( ) Gas and Vapor Lines Blanked | _____ |
| ( ) List Other Locked or Blanked Items | _____ |

**4. PERSONNEL NAME TITLE RESPONSIBILITY** **(Print Name)**

_____ **Site Forman**

_____ **Confined Space Supervisor**

_____ **Attendant**

_____ **Entrant**

_____ **Entrant**

**5. SUPPORT EQUIPMENT** (check appropriate boxes)

( ) Air Monitor ( ) Nextel Radio ( ) Supplied Air System ( ) Blower ( ) Tripod

( ) Confined Space Sign ( ) Retrieval Winch ( ) Rescue Line ( ) Full Body Harness

( )Other_____

**6. PERSONAL PROTECTIVE EQUIPMENT** (check appropriate boxes)

( ) Safety Glasses ( ) Goggles ( ) Gloves ( ) Coveralls ( ) Hard Hat
( ) Boots ( ) Ear Plugs ( ) Respirator & Filter ( ) Inline Air Unit ( ) SCBA

( ) Other _____

**7. HAZARDS** (check appropriate boxes)

| | | |
|---|---|---|
| ( ) Fall | ( ) Dust | ( ) Obstructions Restrictions |
| ( ) Slip | ( ) Hot Work | ( ) Flammable |
| ( ) Visibility | ( ) Heat Stress | ( ) Toxic |
| ( ) Electrical | ( ) Cold Stress | ( ) Corrosive |
| ( ) Noise | ( ) Oxidizer | ( ) Respiratory Hazard |

**8. MSDS Reviewed** ( ) Yes ( ) No

**9. AIR MONITORING RECORD**

Instrument Model: _____ Serial #: _____ Date Calibrated: _____

Air Monitoring Conducted by: _____

Record atmosphere at least once every 20-minutes

| Time | Oxygen 19.5 - 23 | Combustibles (LEL) <10% | Carbon Monoxide (CO) <25ppm | Hydrogen Sulfide (H2S) <10ppm |
|---|---|---|---|---|
| Initial | | | | |
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| Time | Oxygen 19.5 - 23 | Combustibles (LEL) <10% | Carbon Monoxide (CO) <25ppm | Hydrogen Sulfide (H2S) <10ppm |
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## 1 PURPOSE AND SCOPE

### ■ Purpose

The purpose of this policy is to provide guidelines to support good safety performance by the use of adequate disciplinary measures to help eliminate safety violations.

### ■ Scope

This procedure applies to all AC Corporation employees.

## 2 REFERENCES

■ The AC Corporation Safety Manual

## 3 GENERAL

### ■ Responsibilities

- The onsite coordinator and/or foreman is responsible for enforcing this policy on the jobsite.
- The Safety Director is responsible for training compliance regarding this procedure.
- Every AC employee is responsible for complying with the company's safety program, including the rules and regulations outlined in the Safety Manual as well as instructions issued by the onsite coordinator and/or foreman.

## 4 PROCEDURE

### ■ General Requirements

- Every employee will be given safety orientation. Each site safety program will be explained and safety responsibilities clearly identified.
- This Safety Discipline Policy will be made known to each worker during the safety orientation.
- The onsite coordinator or foreman is required to ensure safety instructions for work assignments are conveyed to employees.
- Supervisors are responsible for coordinating work with other supervisors in the area to ensure that all safety procedures are adhered to.
- Violation of a safety rule will result in a probationary period of six months. A worker who receives four safety violations in a six-month period will be terminated.
- Any safety violation that may be considered as 'serious' will be investigated by the Safety Director, the Construction Manager, the employee's supervisor, and any other persons involved, to verify the level of violation.

## Specific Requirements

- All disciplinary actions, including instructions for improvement, are to be documented and given to the employee. A copy should also be given to the Safety Director and a copy is to be put in the employee's personnel file.
- The job site supervisor, foreman, or person assigned to facilitate the completion of a task, is responsible for ensuring that a Safety Task Analysis (STA) is reviewed and signed by each worker for each assignment. The STA will encompass all recognizable risks associated with the work. The instructions will be clearly understood by the worker with an additional understanding that a violation of the project safety instructions or rules may result in disciplinary action up to and including discharge.
- Specific safety instructions will outline proper use of tools and safety equipment and a safe method of performing work assignment.
- The first time an employee violates a safety rule he/she will be verbally warned and the warning will be documented in writing. At this point, the employee is in the six-month probation period.
- A second safety violation within a six-month period will result in a written warning and a three-day suspension without pay.
- A third safety violation within a six-month period will result in a final written warning and a one-week suspension without pay.
- A fourth safety violation within a six-month period will result in immediate termination of employment.

## Other Requirements

- Persons violating safety rules causing risk of personal injury, damage to property, or death may be suspended from employment pending the outcome of a full investigation.
- Every supervisor is subject to disciplinary action for failure to maintain a safe work location or failure to demonstrate a firm commitment to AC Corporation's safety rules.

## Commission of a Serious Violation

- Persons violating safety rules which put themselves or others in imminent danger, or which cause or potentially cause an accident which could result in serious injury or death, or cause serious damage to property, are subject to immediate removal from the jobsite.
- The first serious violation will result in a final written warning and a one-week suspension without pay. The individual will begin a safety violation probationary period of 6-months.
- A second serious safety violation during this six-month period will result in termination of employment.

- If an employee commits a non-serious safety violation within six months of a serious violation, the result will be a three-day suspension without pay.
- If an employee commits two non-serious safety violations within six months of a serious violation, the result will be a one-week suspension without pay.
- If an employee commits three non-serious safety violations within six months of a serious violation, the result will be termination of employment.

**Examples of Serious Safety Offenses are (but are not limited to):**

- Fall Protection violations
- Overriding equipment safety device
- Lock Out/Tag Out violation
- Electrical Arch Flash
- Failure to immediately report an accident

# *Safety Violation Documentation*

***Date***_____

***Employee*** _____

***Department***_____

Non-Serious Violations:
___ First offense: documented verbal warning; 6 months probation
___ Second offense within six months: written warning & three-day suspension
___ Third offense within six months: written warning and one-week suspension
___ Fourth offense: termination of employment

Serious Violations:
___ First offense: one-week suspension; final written warning; 6 months probation
___ Second offense: termination of employment

_____ _____
Employee Supervisor

_____ _____
Safety Director Date

# 1 PURPOSE AND SCOPE

## ■ Purpose

Ensure that only driver's whose records demonstrate a history of safe driving are authorized to drive AC Corporation's vehicles or accept employment for which driving an AC Corporation vehicle is a requirement.

Promote driver safety for persons employed by AC Corporation who drives company provided vehicles or personal vehicles while engaged in company business (a "Driver" Employee).

The definition of driver under this Policy is any AC Corporation employee, ("Employee" or "Driver") who regularly drive his or her own personal vehicle(s) for company business, or drives an AC Corporation owned/leased vehicle.

## ■ Scope

Reduce the severity and frequency of losses associated with AC Corporation's vehicles.

All "Driver" Employees are responsible for adhering to this policy as a condition of employment.

# 2 Responsibilities

This Policy is governed and administered by the Human Resources Department. Any decision or interpretation of the Policy by the Company is binding and final upon the Employee.

The Job Site Superintendent or Foreman is responsible for implementing, enforcing and monitoring this procedure on their job site.

The *Safety Director* is responsible for training compliance with this procedure.

# 3 PROCEDURE

Assuring that the driver remains qualified is an on-going process. Motor Vehicle Record (MVR) Checks will be obtained annually for all "Driver" Employees. Driver qualification files will be maintained to facilitate review of a "Driver" Employee's adherence to the Policy.

Prior to an offer of employment, all candidates will be required to sign a Driver Record Request Form authorizing AC Corporation to obtain a MVR from the state where the driver holds a license. Failure to sign the Driver Record Request Form will result in the withdrawal of an offer of employment.

AC Corporation may, at its sole discretion, make an offer of contingent employment to the candidate prior to receiving a MVR, but not prior to receiving the Driver Record Request Form or the Initial Driver Evaluation Form. AC Corporation will, as stipulated by the Policy, obtain a MVR for the Employee after the hire date. An Employee who does not meet the conditions of the Policy will be terminated immediately.

## 4 CONDITIONS OF EMPLOYMENT FOR DRIVERS

- It is the "Driver" Employee's responsibility to maintain a driving record that is within the limitations of this Policy and applicable state laws.
- The "Driver" Employee must, at all times, maintain a valid and current driver's license in the state of the Employee's residence.
- While operating an AC Corporation vehicle, all moving violations must be reported to the Human Resources Department within 24 hours of the violation.
- A candidate for employment with more than three (3) minor moving violations over the preceding twelve-month period is not eligible for employment.
- In the event the Employee's driver's license is suspended or revoked, the Employee is required to report such occurrence, in writing, to the Human Resources Department within 24 hours of the revocation or suspension and must immediately cease driving for Company purposes until further notice from the Human Resources Department. Failure to report the revocation or suspension of the Driver's license will result in immediate disciplinary action by AC Corporation; suspension up to termination of employment with Company.

Other grounds for immediate termination of employment include, but are not limited to:

- Receiving a DUI (driving under the influence) of alcohol or drugs or DWI (driving while intoxicated) charge.
- Suspension of Driver's license due to points and/or accidents.
- Two (2) traffic accidents within the preceding six (6) month period in which the Employee received a traffic citation.

Under no circumstances is Non-AC Corporation employee or a family member of an AC Corporation employee allowed to operate a vehicle that is insured by AC Corporation.

## 5 ACCIDENT REPORTING FOR COMPANY VEHICLES

- The Employee should never discuss the details of an accident with anyone other than the Employee's immediate supervisor, Human Resources, the Insurance Company Representative or their direct designee (attorney) or police investigators.
- Traffic accidents involving AC Corporation vehicles incurred while on Company business or while on personal use, **must be reported to the Human Resources Department,** within 24 hours of such occurrence or on the following business day, whichever comes first. Failure to report vehicle accidents when due will result in disciplinary action to the Driver.
- The Employee must call the police and obtain the Police Accident Report number, officer badge number and name.

- All accidents resulting in Employee injuries that occur while conducting Company business must be reported to the Human Resource or Safety Department.

## REINSTATEMENT AND/OR REHIRE

Drivers whose employment with the Company is terminated due to any of the conditions mentioned previously, are eligible to apply for reinstatement of employment or rehire for available open positions after meeting all Conditions For Employment as detailed above. If, after reinstatement or rehire to a driving position, the Employee incurs more than one moving violation or chargeable accident during the first 90 days after reinstatement or rehire, the Employee will be terminated immediately. The Employee is no longer eligible for reinstatement or rehire after this termination.

## DRIVER SAFETY RULES

"Driver" Employees driving Company owned/leased vehicles or personal vehicles while on Company business are expected to perform in accordance with the following objectives:

- Avoid vehicle accidents and moving violations by driving defensively
- Avoid vehicle abuse by proper vehicle care, maintenance, and use
- Be courteous to other drivers
- Never pick up hitchhikers
- Carry no more than two passengers in the front seat
- Avoid talking, texting, gaming, surfing Internet, etc… on cellular/mobile phones while driving. Pull over or out of traffic or use a speakerphone or headset to allow for both hands to stay on the steering wheel.
- Avoid not manipulating radios or other equipment which may cause distraction.
- Do not exceed posted speed limit and maintaining a safe distance between other vehicles.
- Never drive under the influence of drugs or alcohol. Check with your doctor on possible adverse effects from prescription or over-the-counter medications.
- Always use seat belts, shoulder restraints and ensure that passengers do, as well
- Always lock an unattended vehicle
- No smoking is permitted in company owned/leased vehicles
- When parking, try to leave the vehicle in a well-lighted, secure area
- Equipment and material must be secured and load distributed within manufacturer's recommendations and legal limits before transporting. Large

items such as tools, materials, and equipment boxes. Fire extinguishers must be secured and inspected at least once a month

- Inspect the vehicle at the beginning of each workday to ensure that it is in good working order
- Follow the vehicle guidelines for maintenance and safe operations; the vehicle shall be maintained in good working order
- Prior to motor vehicle operation, the operator is responsible for the vehicle, and for conducting a pre-trip, walk around inspection prior to use (including load evaluation, if applicable). No vehicle with any mechanical defect, which endangers the safety of the driver, passengers, or the public, shall be used.
- Except for standard size passenger pick-up trucks, all Company owned/leased trucks, should have small convex mirrors attached to the side mirrors.

# AC Corporation

# DRIVER AGREEMENT

Any time I am furnished a company vehicle to drive, or when on company business in my own vehicle, I understand and agree to the following:

1. I will have a valid driver's license in my possession.

2. I will make every effort to abide by the laws of each state in which I am required to drive.

3. I will not operate the vehicle while I am under the influence of alcohol or impaired in any way.

4. Failure to abide by any of the above will result in my losing the privilege of driving a company-owned vehicle and will cause me to be subjected to disciplinary action up to and including termination.

Driver's License Number and State: _____

Expiration Date: _____

_____
Print Name

_____
Signature

_____
Date

## 1 PURPOSE AND SCOPE

### Purpose

This procedure provides the guidelines for personnel who work on or around electrical systems. To prevent employee injury, illness or death from exposure to electrical energy hazards. To establish appropriate practices for work on or near electrical systems and equipment that uses electrical energy. To provide procedural controls that assures the effective use of safety-related practices.

### Scope

This procedure applies to all AC Corporation personnel and subcontractors working on projects where electrical safety requirements are applicable.

## 2 REFERENCES

- Code of Federal Regulations, Title 29, Part 1926, *Occupational Safety and Health Administration* (OSHA), U.S. Department of Labor.
- The applicable requirements of the following OSHA regulations, ANSI standards and NFPA codes are to be complied with as a part of this policy:
- Occupational Safety and Health Administration (OSHA) 29 CFR:
- 1926.416 - Electrical Safety Related Work Practices
- Part 1910, Subpart J - General Environmental Controls
- 1910.147 - The Control of Hazardous Energy (Lockout / Tagout)
- Part 1910, Subpart S - Electrical
- 1910.302 - Design Safety Standards for Electrical Systems
- 1910.331 - Safety-related Work

## 3 GENERAL

The specific safety-related work practices used must be consistent with the nature and extent of the associated electrical hazards.

### Responsibilities

The Job Site Superintendent or Foreman is responsible for implementing, enforcing and monitoring this procedure in their job site.

The *Safety Director* is responsible for training compliance with this procedure.

The Employee is responsible for working within their qualifications and follow AC Corporation procedures.

## 4 PROCEDURE

### Work Practices

- *Safety-related work practices must be employed to prevent electric shock or other injuries resulting from either direct or indirect electrical contacts when work is*

*performed near or on equipment or circuits which are or may be energized. [OSHA 29 CFR 1910.333]*

- ***Use of Equipment***
- *Safe practices relating to portable electric equipment, electric power and lighting circuits, test instruments and equipment, flammable or ignitable materials must be used. [OSHA 29 CFR 1910.334]*

- ***Personal Protection***
- *Employees working in areas where there are potential electrical hazards must be provided with, and use, electrical protective equipment that is appropriate for the specific parts of the body to be protected and for the work to be performed.*

■ **Electrical Installations / Construction Sites. .**

- Light bulbs for general illumination must be protected from breakage, and metal shell sockets must be grounded. [29 CFR 1926.405(a)(2)(ii)(E)]
- Temporary lights must not be suspended by their cords, unless they are so designed. [29 CFR 1926.405(a)(2)(ii)(F)]
- Portable lighting used in wet or conductive locations, such as tanks or boilers, must be operated at no more than 12 volts or must be protected by GFCI's. [29 CFR 1926.405(a)(2)(ii)(G)]
- Extension cords must be of the three-wire type. Extension cords and flexible cords used with temporary and portable lights must be designed for hard or extra hard usage (for example, types S, ST and SO). [29 CFR 1926.405(a)(2)(ii)(j)
- Worn or frayed electric cords or cables shall not be used. [29 CFR 1926.416(e)(1)]
- Extension cords shall not be fastened with staples, hung from nails, or suspended by wire. [29 CFR 1926.416(3)(2)]

■ **Working On or Near Exposed Deenergized Parts.**

This applies to work on exposed deenergized parts or near enough to them to expose the employee to any electrical hazard they present. [29 CFR 1910.333(b)] The following is required:

- Live parts above 50 volts to ground and to which an employee may be exposed must be deenergized before the employee works on them unless deenergizing introduces additional or increased hazards or deenergization is infeasible due to equipment design or operational limitations.
- Conductors and parts of electric equipment that have been deenergized but have not been properly locked and tagged out must be treated as energized parts.
- Before any circuits or equipment can be considered and worked as deenergized, a qualified person, as defined in this procedure, must make suitable tests to verify deenergization.

- **Lockout / Tagout Procedure** must be used to provide procedural controls for personnel working on or around equipment with hazardous electric energy.
- Implementation of any "tag without lock" must be authorized by a valid SOP or by the Facility / Site Manager.

**Note:** If a lock cannot be applied, a tag may be used without a lock. A tag used without a lock must be supplemented by at least one additional safety measure that provides a level of safety equivalent to that obtained by the use of a lock. An example of additional safety measure is the removal of an isolating circuit element. [29 CFR 1910.333(b)(iii)(D)]

- Only qualified persons may lockout / tagout hazardous electrical energy.
- Verification of deenergization is mandatory. A qualified person must do this verification.
- Before reenergization, a qualified person must conduct tests and visual inspections, as necessary, to verify that all tools, electrical jumpers, shorts, grounds, and other such devices have been removed so that the circuits and equipment can be safely energized.

■ **Working On or Near Exposed Energized Parts.**

This applies to work performed on exposed **live** parts or near enough to them for employees to be exposed to any hazard they present. [29 CFR 1910.333(c)]. The following is required:

- Only qualified persons, as defined in this procedure, are to be allowed to work on electric circuit parts or equipment that have not been deenergized. [29 CFR 1910.333(c)(2)]
- For work on live parts that are not deenergized, suitable safe work practices for the conditions under which the work is to be performed must be provided in written procedures and strictly enforced.
- If work is to be performed near overhead lines, the lines must be deenergized and grounded, or other protective measures must be provided before work is started. Protective measures used must prevent employees from contacting the lines directly with their body parts or indirectly through conductive tools and equipment. [1010.333(c)(3)]. The following is required:
  - — When an unqualified person is working in an elevated position near overhead lines, the location must be such that the person and the longest conductive object being used is incapable of coming closer to any unguarded energized overhead line than the following distances:
  - — Less than 50kV = 10 Feet
  - — More than 50kV = 10 Feet plus 4 Inches for every 10kV over 50kV
- When an unqualified person is working on the ground in the vicinity of overhead lines, the person must not bring any conductive object closer to unguarded,

energized overhead lines than the distances given in the preceding paragraph. [29 CFR 1910.333(c)(i)(B)]

- When a qualified person is working in the vicinity of overhead lines, whether in an elevated position or on the ground, the person must not approach or take any conductive object without an approved insulating handle closer to exposed energized parts than approach distances shown below in Table 1 unless:
- The person is insulated from the energized part, or
  - The energized part is insulated from all other conductive objects at a different potential and from the person, or
  - The person is insulated from all conductive objects at a potential different from that of the energized part. [29 CFR 1910.333(c)(3)(ii)]

**Table 1 APPROACH DISTANCES FOR QUALIFIED EMPLOYEES**

| Voltage Range (AC phase-to-phase voltage) | *Minimum Approach* Distance |
|---|---|
| 300 V and less | Avoid contact |
| Over 330 V, not over 750 V | 1 ft. 0 in. (30.5 cm) |
| Over 750 V, not over 2 kV | 1 ft. 6 in. (46 cm) |
| Over 2 kV, not over 15 kV | 2 ft. 0 in. (61 cm) |
| Over 15 kV, not over 37 kV | 3 ft. 0 in. (91 cm) |
| Over 37 kV, not over 87.5 kV | 3 ft. 6 in. (107 cm) |
| Over 87.5 kV, not over 121 kV | 4 ft. 0 in. (122 cm) |
| Over 121 kV, not over 140 kV | 4 ft. 6 in. (137 cm) |

- Any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines must be operated so that a clearance of 10 ft. is maintained. If the voltage is higher than 50 kV, the clearance must be increased 4 in. for every 10 kV over that voltage. [29 CFR 1910.333(c)(3)(iii)]
- If the vehicle is in transit with its structure lowered, the clearance may be reduced to 4 ft. If the voltage is higher than 50 kV, the clearance must be increased 4 in. for every 10 kV over that voltage.
- If proper insulating barriers are installed, clearance may be reduced to a distance within the designed working dimensions of the insulating barrier.
- If the equipment is an aerial lift insulated for the voltage involved, and if the work is performed by a qualified person, the clearance may be reduced to the distance given in Table 1. The following is required:

- Employees standing on the ground may not contact the vehicle or equipment unless protective equipment rated for the voltage is used, or Table 1 approach distances are not violated.
- If the vehicle or equipment capable of having parts elevated near energized overhead lines is intentionally grounded, employees working on the ground near the point of grounding may not stand at the grounding location whenever there is a possibility of overhead line contact.

- Employees must not enter spaces containing exposed energized parts unless illumination is provided that enables the employees to perform the work safely. [29 CFR 1910.333(c)(4)]
- When an employee works in a confined or enclosed space (such as a manhole or vault) that contains exposed energized parts, the employee must use protective shields, protective barriers, or insulating materials as necessary to avoid inadvertent contact with these parts. [29 CFR 1910.333(c)(5)] Confined Space Entry Procedure must be used in conjunction with this procedure.
- Conductive materials and equipment that are in contact with any part of an employee's body must be handled in a manner that will prevent them from contacting exposed energized conductors or circuit parts. [29 CFR 1910.333(c)(6)]
- Portable ladders must have nonconductive side rails if they are used where the employee or the ladder could contact exposed energized parts. [29 CFR 1910.333(c)(7)] Portable Ladders Procedure must be used in conjunction with this procedure.
- Conductive articles of jewelry and clothing must not be worn if they might contact exposed energized parts. However, such articles may be worn if they are rendered nonconductive by covering, wrapping, or other insulating means. [29 CFR 1910.333(c)(8)]
- Where live parts present an electrical contact hazard, employees must not perform housekeeping duties at such close distances to the parts that there is a possibility of contact, unless adequate safeguards are provided. Electrical conductive cleaning materials must not be used in proximity to energized parts unless procedures are followed which will prevent electrical contact. [29 CFR 1910.333(c)(9)]
- Only a qualified person, following proper requirements, should defeat an electrical safety interlock, and then only temporarily while working on the equipment. The interlock system must be returned to its operable condition when this work is completed. [29 CFR 1910.333(c)(10)]

- **Use of Portable Electric Equipment.** This applies to the use of cord- and plug connected equipment, including flexible cord sets (extension cords). [29 CFR 1910.334(a)] The following is required: [29 CFR 1910.334(a)] The following is required:

- Handling of portable electric equipment must be done in a manner that will not cause damage to the equipment.
- Visual inspection of portable electric equipment must be made, before use, for external defects and for evidence of possible internal damage.
- A flexible cord used with grounding type equipment must contain an equipment-grounding conductor.
- A GFCI will be used on all outside work or in any area that has potential for shock (e.g., a wet area)
- Portable electric equipment used in highly conductive work locations, or in job locations where employees are likely to contact water or conductive liquids, must be approved for those locations.
- If energized equipment is involved, employees' hands must not be wet when plugging or unplugging flexible cords.

■ **Use of Electric Power and Lighting Circuits.** [29 CFR 1910.334(b)] The following is required:

- Only approved equipment must be used for routine opening and closing of circuits.
- After a circuit is deenergized by a circuit protective device, the circuit must not be manually reenergized until it has been determined that the equipment and circuit can be safety energized.
- Overcurrent protection of circuits and conductors must not be modified, even on a temporary basis, beyond that allowed by Design Safety Procedure and the associated standards.

■ **Use of Testing Instruments and Equipment.** [29 CFR 1910.334(c)] The following is required:

- Only qualified persons should perform testing work on electric circuits or equipment.
- Test instruments and equipment must be visually inspected before the equipment is used.
- Test instruments and equipment must be rated for the circuits and equipment to which they will be connected and must be designed for the environment in which they will be used.

■ **Occasional Use of Flammable or Ignitable Material.** [29 CFR 1910.334(d)] The following applies:

- Electrical installation requirements for locations where flammable materials are present on a regular basis are covered by 29 CFR 1910.307.

- Where flammable materials are present only occasionally, electric equipment capable of igniting them must not be used, unless measures are taken to prevent hazardous conditions from developing.

- **Use of Personal Protective Equipment.** [29 CFR 1910.335(a)] Personal Protective Procedure must be used in conjunction with this procedure. The following is also required:

  - Employees working in areas where there are potential electrical hazards must use electrical protective equipment that is appropriate for the specific parts of the body to be protected and for the work to be performed.

  - Protective equipment must be maintained in a safe, reliable condition and must be periodically inspected or tested. Care must be taken to protect insulating material if subject to damage. Only non-conductive (type A or B) hard hats should be worn. Eye / face protection must be worn wherever there is a danger of injury from electric arcs or flashes or from flying objects resulting from an electrical explosion.

- **General Protective Equipment**

  - When working near exposed energized conductors or circuit parts, each employee must use insulated tools or handling equipment if the tools or handling equipment might make contact with such conductors or parts.

  - Fuse handling equipment, insulated for the circuit voltage, must be used to remove or install fuses when the fuse terminals are energized. Ropes and handlines used near energized parts must be non-conductive.

  - Protective shields, protective barriers, or insulating materials must be used to protect each employee from shock, burns, or other electrically related injuries. When normally enclosed live parts are exposed for maintenance or repair, they must be guarded to protect unqualified persons from contact with the live parts.

- **Alerting Techniques.** [29 CFR 1910.335(b)]

  - Safety signs, safety symbols, or accident prevention tags must be used where necessary to warn employees about electrical hazards which may endanger them.

  - Barricades must be used in conjunction with safety signs where it is necessary to prevent or limit employee access to work areas exposing employees to uninsulated energized conductors or circuit parts.

  - If signs and barricades do not provide sufficient warning and protection from electrical hazards, an attendant must be stationed to warn and protect employees.

## 5 TRAINING

**Training** in electrical systems work safety procedures must include the following:

- The hazards and safeguards associated with electrical systems.

- New employee orientation level training should address inherent electrical hazards associated with the facility / site.
- Employees must be trained in and familiar with the safety-related work practices required by this procedure that pertain to their respective job assignments. [OSHA 29 CFR 1910.332(b)]
- The training required by this procedure must be of the classroom or on the-job type. The degree of training provided must be determined by the risk to the employee. [OSHA 29 CFR 1910.332(c)]
- Written training plans must be prepared and used for the training required by this procedure. Such training plans should be written to convey a record of training and:
  - Specific electrical hazards faced by the employee being trained must be addressed in the plan.
  - Provision for retraining and verification of retraining must be included in the training plan.
  - Verification of training must be accomplished by testing or practical demonstration.
  - All employees must have initial and periodic refresher training on the above. In addition, each supervisor must review any significant incidents involving electrical hazards or work practices in safety meetings.

**Documentation of all electrical systems work safety procedures training** is required. The following information should be included:

- The date of the training.
- Names of the participants and the instructor.
- Summary of the subject matter presented.
- Method of training and training aids used.
- Method used to evaluate participant's understanding.

**FACILITY / SITE SUPERVISION SHOULD CONTINUE ON THE JOB INSTRUCTION TO EMPLOYEES AS NECESSARY TO ENSURE PROPER COMPLIANCE WITH THESE PROCEDURES.**

■ **Levels of Training**

**Level One**

**Employee whose work is not dangerously close to exposed parts of electric circuits and who does not face a higher than normal risk of electrical accident** (Executives, Office and Clerical Personnel) is responsible for:

- Being aware of and familiar with this procedure and completing **Level One** electrical training.

- **Level One Electrical Training:** (OSHA does not require training for employees if their work or the work of those they supervise does not bring them or the employees they supervise close enough to exposed parts of electric circuits, operating at 50 volts or more to ground, for a hazard to exist) [OSHA 29 CFR 1910.332] The employee who faces no higher than normal risk of electrical accident must receive training for:
- Knowing the correct responses to signs such as Danger, Warning, Caution, Authorized Personnel Only, High Voltage, etc.
- Avoiding contact with exposed electrical circuits that have a potential of more than 50 volts to ground.
- Knowing that areas containing major electrical installations may be entered only by authorized personnel.

**Level Two**

The **Employee who is unqualified for work on electrical systems, but who is in an occupational category that faces a higher than normal risk of electrical accident** (janitors, painters, carpenters, etc.) is responsible for:

- Level One Electrical Training
- Knowing their role and limitations under the facility / site Lockout / Tagout Procedure.
- Being aware of and familiar with this procedure and completing **Level Two** electrical training.
- Being aware of typical occupational categories of employees facing a higher than normal risk of electrical accident.
- Knowing the safeguards built into electrical equipment and having the skills to recognize when an electrical hazard exists.
- Knowing the procedures for response to emergencies.

**Level Three**

The **Employee who is qualified to work on non-energized equipment and faces a higher than normal risk of electrical shock accident, not reduced to a safe level by compliance with applicable installation requirements,** (pipe fitters, welders, maintenance mechanics, mobile equipment operators) is responsible for:

- Levels One and Two Electrical Training
- Knowing their role and limitations under the facility / site Lockout / Tagout Procedure.
- Being aware of and familiar with this procedure and completing **Level Three** electrical training. The safety-related work practices required by 29 CFR 1910.331 through 1910.335.

- Completing training for avoidance of specific higher than normal risks related to particular work areas, and knowing hazard avoidance practices.
- Knowing his / her own work qualifications and limitations.
- Conferring with supervision regarding hazards associated with the job assignment.
- Advising supervision of any questionable situations relating to procedure, changed worksite conditions, etc.
- Following the general and specific requirements of this procedure that are applicable to the work.

**Level Four**

The **Employee who is a "qualified person", as defined, and who performs work on or near exposed energized parts** (electricians, instrument technicians, electronics technicians, etc.) is responsible for:

- Levels One, Two and Three Electrical Training
- Implementing AC Corporation Lockout / Tagout procedure where appropriate.
- Being aware of and familiar with this procedure and completing **Level Four** electrical training.
- Being trained and familiar with the following:
  - "The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment..." [OSHA 29 CFR 1910.332(b)(3)(i)]
  - "The skills and techniques necessary to determine the nominal voltage of exposed live parts..."
  - [OSHA 29 CFR 1910.332(b)(3)(ii)]
  - "Clearance distances specified in 29 CFR 1910.333(c) and the corresponding voltages to which the qualified person will be exposed." [OSHA 29 CFR 1910.332(b)(3)(iii)]
  - Working safely on energized circuits and being familiar with the proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools. [OSHA 29 CFR 1910.333(c)(2)]

## 1 PURPOSE AND SCOPE

### ■ Purpose

This procedure provides the guidelines for implementing relevant procedures for governing actions to be taken in the event of serious injury, property damage, or other catastrophe affecting the operation. These procedures will not supersede any guidelines established and set forth by the General Contractor.

### ■ Scope

Conducting a survey will reflect the strongest and weakest facets of health care services for site construction, to assist management in adequately developing and planning for site emergencies as they relate to personnel injuries and or illnesses.

## 2 REFERENCES

None

## 3 GENERAL

Prior to the start of work on a project, the project manager review emergency procedures with the General Contractor to determine what services are available, their proximity to the job, and the best response time to serve the project's needs.

### ■ Definitions

None

### ■ Responsibilities

The *Project Manager* is responsible for conducting the necessary surveys and issuing the appropriate recommendations to the Manager/Supervisor as to the best services for the project.

The *Safety Director* is responsible for ensuring the enforcement of the procedures.

All management, supervisory and other AC Corporation project personnel should be thoroughly familiar with these procedures.

## 4 PROCEDURE

**Injury/Illness**

- Hospitals/Healthcare

  When an incident occurs and requires medical attention it is determined by the medical responder/foreman the best method to treat or transport the employee.

- Ambulance Service

  The decision to transport an employee for medical attention will be determined by the medical responder/foreman.

**Thunderstorms**

- Since thunderstorms are difficult to foresee, it is important that employees be educated in the safety precautions to be taken in the event of a thunderstorm.

- Employees shall seek shelter indoors during a thunderstorm when possible. When indoors, it is important that employees avoid contact with electrical appliances and conductive surfaces and structures.
- When outdoors, employees shall remain lower than the nearest highest conductive object. Lightning will strike the easiest source to ground, not necessarily the highest. Conductive objects such as trees, telephone poles, crane booms, and flag poles shall be avoided. A safe distance from a conductive object is twice the object's height. Lightning is a thunderstorm's worst killer.
- Objects which may carry electric current from a remote thunderstorm shall also be avoided. These objects would include telephone lines, pipe lines, and fences. A worker shall not use electric tools outdoors if a thunderstorm is in the immediate area.
- The rains accompanying a thunderstorm may create flooding conditions. National Weather Service advisories shall be monitored for flash flood warnings. Employees shall be instructed to avoid flood plains, drainage ditches, and dried creek beds when a flash flood warning is issued.
- Employees must take certain precautions while driving during a thunderstorm. When poor visibility is encountered, the driver shall stop his vehicle until visibility improves. When lightning is in the immediate area, the employee shall seek shelter indoors, or remain in the vehicle away from interior metal parts. When high winds or flooding accompany the thunderstorm, the employee shall seek an appropriate protected area.
- Employees shall not be permitted to work on or operate cranes during a thunderstorm. To prevent damage or injury, cranes shall be grounded.

**Lightning**

Lightning causes around 100 deaths in the U.S. annually (more than hurricanes and tornadoes combined). Lightning can strike up to several miles away from the thunderstorm. It does not have to be raining.

- Avoid using the telephone or other electrical appliances.
- Avoid water. Avoid the high ground. Avoid open spaces.
- Avoid all metal objects including electric wires, fences, machinery, motors, power tools, etc.
- Lower crane booms and keep clear of long boom cranes.
- Find shelter in substantial buildings or in a fully enclosed vehicle such as a car, truck or van with the windows completely shut.
- If lightning is striking nearby and you are caught outside or you feel your hair standing on end, you should:
- Crouch down/squat. Put feet together. Place hands over ears to minimize hearing damage from thunder. Do not lie flat!

- Avoid proximity (minimum 15') to other people.

**Hurricanes**

- Hurricanes and tropical storms are most likely to occur between June1 and November 30.
- Upon an announcement of a hurricane from the National Weather Service issuance of hurricane warnings, the Foreman shall cancel work for the day if work designate an individual to be responsible for monitoring the hurricane path reported by the. The designated individual shall maintain a weather chart indicating the path and progress of the storm and noting projections furnished by the National Weather Service advisories. The location of the eye, or center of the storm, should be determined as near as possible.
- If evacuation is necessary, instructions of the local governmental agencies shall be followed.
- To protect the site against the destructive winds associated with hurricanes, the following preparations shall be made:
    - All loose material shall be securely anchored or stored before the storm arrives. Special attention shall be paid to flat, light, and empty containers.
    - Roofs shall be made as clear as possible. Items not completely installed, such as vents, chimneys, heating and ventilating ducts, shall be secured.
    - Openings or ducts from fans, ventilators, and air conditioners shall be mechanically closed.
    - Small, lightweight equipment shall be placed in warehouses or buildings, or be weighted down.

**Tornadoes**

- When a tornado is expected in or near the area, a tornado watch is issued by the Weather Bureau. When a tornado watch is issued, the Manager/Supervisor shall appoint an individual to monitor the National Weather Service advisories. A tornado warning is issued when a tornado has actually been sighted. The tornado warning will state where the tornado was sighted, where the tornado is expected to move, and when it is expected to affect the area warned.
- When a tornado warning is issued, emergency precautions shall be taken immediately. An emergency alarm shall be sounded and all employees shall move to designated emergency shelters. The predetermined shelter should be located in a reinforced building, the basement of a building, an inner hallway on a lower floor, or a similar location away from windows. A large room with a wide, free-span roof shall not be used.

# 1 PURPOSE AND SCOPE

## Purpose

To establish protective controls for personnel working at elevated heights and to establish a system for identification of areas requiring personnel to work at elevated heights of six (6) feet or greater.

To prevent or minimize injury or death resulting from falls from elevated work locations.

To identify elevated work areas and tasks requiring fall protection equipment.

To establish minimum standards of AC Corporation's "100% Tie Off" requirement and applications for fall protection equipment and systems.

## Scope

This procedure establishes minimum requirements for working at unguarded elevated work locations that are six (6) feet or more above floor or grade level. Work sites adjacent to pits, trenches, docks and / or on platforms or catwalks where the fall potential is four (4) feet or greater; openings of tanks, sewer openings, etc.

This procedure applies to all AC Corporation employees and sub-contractors. It covers activities such as, but not limited to work in or on:

- Man lift equipment
- Roofs
- Unguarded scaffolding
- Suspended scaffolds
- Tank tops
- Process structures without guarded work platforms

# 2 REFERENCES

- 29 CFR 1910.66
- Title 29, Code of Federal Regulations, Parts 1910 and 1926, Occupational Safety and Health Administration (OSHA), U.S. Department of Labor.
- ANSI A10.11 - Safety Nets Used During Construction, Repair and Demolition Operations
- ANSI A10.14 - Safety Belts, Harnesses, Lanyards, Lifelines and Drop Lines for Construction and Industry
- ANSI Z359.1-1992

# 3 GENERAL

## Responsibilities

- Site Manager / Foreman is responsible for:

- — Understanding, implementing, complying with and enforcing this procedure.
- — Evaluating the potential elevated work hazards at facilities / Projects, qualifying the level of risk of each job and establishing the required safeguards.
- — Conferring with AC Corporation supervision, reporting to him, as to the hazards and safeguards related to elevated work on the project.
- — Monitoring work areas for compliance with this procedure and required safeguards.
- — Implementing, enforcing and monitoring this procedure in their job site.

- The *Safety Director* is responsible for preparing and training compliance in regards to this procedure.
- The *Employee* is responsible for working within their qualifications and following AC Corporation procedures.

## 4 PROCEDURE

In order to protect against falls, the key factor is the recognition of hazards. Falls are generally a result of poor work practices, unsafe conditions or a combination of the same.

Fall prevention must be established by means of hazard analysis in the planning stage of a project and / or task. Examples of items to be analyzed are, but not limited to the following:

- Layout and arrangement of tools and / or equipment.
- Integrity of aisles, floors, entrances, exits and access ways
- Proper handrails, guardrails
- Exposure to weather conditions and illumination
- Methods of personnel / material hoisting equipment
- Utilization and effectiveness of fall protection systems or a combination of systems

### ■ Same Level Fall Protection

- Good housekeeping is the key to the prevention of same level falls
- Usable and waste material shall be stored out of pathways and shall not congest a work area
- Surfaces shall be kept free of slipping hazards
- Every floor hole into which persons cannot accidentally walk shall be protected by a cover that leaves no openings more than 1 inch wide. The cover shall be securely held in place to prevent tools or materials from falling through.

- Floor holes and openings shall be covered as not to create tripping hazards. Hole covers must be capable of supporting at least twice the maximum load that may be imposed on them. Covers must be secured and marked "HOLE" or "COVER".
- Only lanyards which have both shock absorbing systems and double-locking snap hooks should be used
- Personal fall protection must be used when an exposure to a free fall hazard cannot be prevented by the use of permanent or semi-permanent guarded platforms and the work location is at a height of six (6) feet or greater.
  - — Personal fall protection must be used and anchored to a designated anchor point when using, traveling on or working from mobile work platforms such as:
    - Aerial Platform (Manlift)
    - Scissor-lift and
    - Basket Lift
  - — Personal fall protection must be used as required by other policies such as Confined Space Entry.
  - — All JSA's should reference the information in this policy when elevated work at heights of six (6) feet or greater is required. The personal fall protection requirements for the work must be described in the JSA.
  - — Personal fall arrest systems and their uses must comply with the provisions in 29 CFR 1926.502.The components of a personal fall arrest system include:
    - Connectors (re: buckles, dee-rings, snaphooks). Non-locking snap hooks are not permitted.
    - Lifelines (vertical, horizontal, self-retracting)
    - Deceleration devices (rope grab, ripstitch lanyard, specially woven lanyard, tearing or deforming lanyard, automatic self-retracting lifeline / lanyard)
    - Body harnesses (body belts are not permitted for fall arrest)
    - Anchorages (secure point of attachment for lifeline, lanyards and deceleration devices)
    - Lanyards (**Double Lanyard Safety Harnesses are required for all personal fall arrest systems. Single Lanyard Harnesses are prohibited from use on all AC Corporation's projects.)**
- **All personal fall protection equipment** used by AC Corporation employees must meet OSHA and ANSI Standards.
- **Personal fall protection equipment** must be stored as recommended by the manufacturer. Generally, the equipment should:
  - — Be kept clean and dry
  - — Be stored away from solvents, chemicals, oil, grease, etc.

- Never be stored in tool bins
- Never be stored where abrasion, fraying or other physical damage may occur
- Personal fall protection equipment must be inspected quarterly and records kept of the inspections. Any frayed or damaged equipment must be removed from service and replaced by the responsible supervisor.
- Re-certification by the manufacturer is required for reel-type devices annually or after any fall arrest event. Records are to be made of re-certification.
- Lanyards and harnesses that have been in-service loaded must be destroyed.

- **Anchorage Points**

  The strength of a personnel fall arrest system is based on its being attached to an anchorage system that does not reduce the strength of the system. The following equipment and structure will not meet the requirements of the OSHA fall protection standard and shall **NOT** be used for anchorage points.

  - Screw Pipe
  - Conduit
  - Cable Tray (use requires engineering approval)
  - Welded Pipe Less Than 2"
  - Wooden Handrails

- **Positioning Device Systems**

  Work positioning systems are sometimes required for specialized tasks such as installing vertical rebar walls. Personnel using positioning systems must adhere to the following minimum guidelines.

  - Personal positioning belts will only be allowed after they have been inspected and found acceptable by the onsite safety representative or foreman. A method for readily identifying inspected belts must be developed by the project site to ensure all positioning belts in use have been approved.
  - Positioning belts of any kind shall not be used as fall protection systems at any time.
  - Work positioning lanyards are to be attached to D-rings at the waist belt location and be supported by an appropriate work belt/harness. Positioning lanyards shall not be of the shock absorbing type and shall not be used for fall protection.
  - The positioning type lanyard shall limit fall potential to three feet (3') or less.
  - The positioning lanyard must always be backed up by a properly secured shock absorbing fall protection lanyard or retractable lifeline reel.
  - While ascending or descending vertical rebar walls, 100% fall protection shall be maintained by utilizing the shock absorbing double lanyard system or retractable lifeline reels.

- Snap hooks on positioning lanyards shall be of the double action/locking type design. Simple spring resistant hooks shall not be used.
- Employees using positioning belts/harnesses and lanyards shall inspect them for wear, damage and other deterioration prior to each use.
- All positioning belts/harnesses and lanyards shall be inspected at least monthly.
- Defective positioning belts/harnesses and lanyards shall be tagged "DEFECTIVE - DO NOT USE" and immediately removed from service.
- Positioning devices shall be secured to an anchorage capable of supporting at least twice the potential impact load of an employee's fall or 5,000 pounds, whichever is greater.

- **Lifeline Systems**

  Lifeline systems are points of attachment for fall protection lanyards and harnesses. Lifelines may be mounted either vertically or horizontally and provide fall protection for personnel working in elevated areas.

  - Lifelines shall not be used for any other purpose than fall protection.
  - Lifelines shall be protected against being cut or abraded (i.e., Softeners around lifelines at anchorage point).
  - Lifelines shall be inspected, by a Competent Person(s) at least weekly to ensure system and equipment integrity. The project shall develop a method to readily identify that the lifeline has been inspected and is fit for use prior to beginning any work involving the lifeline system.

- **LIFELINE PLACEMENT/INSTALLATION**
  - Use the engineered systems included in this procedure or the project will be required to design and engineer a system for their particular needs. Approved-engineered drawings must be kept on file at the project. All engineered systems must be approved by a registered professional engineer.
  - Lifelines must be installed and used under the supervision of a qualified person. Only designated qualified persons that have been approved by the project manager/superintendent /foreman or safety director will be allowed to supervise the installation. Written documentation on personnel qualified to supervise the installation of lifelines shall be kept on file at the project.

- **HORIZONTAL LIFELINES**
  - Systems must be designed and engineered to maintain a safety factor of at least two (2).
  - Use the engineered systems included in this procedure or the project will be required to design and engineer a system for their particular needs. This must be done under the approval of a professional engineer. Approved-engineered drawings must be kept on file at the project.

- Lifelines shall be installed, removed, and used under the supervision of a designated qualified person(s).
- Written documentation on personnel qualified to supervise the installation of lifelines will be kept on file at the project.

- **VERTICAL LIFELINES**
  - Must have a minimum breaking strength of at least 5000 pounds.
  - Approved engineered drawings must be kept on file at the project.
  - Only designated qualified persons that have been approved by the project manager/ superintendent /foreman and safety director will be allowed to supervise installation.
  - Written documentation on personnel qualified to supervise the installation of lifelines will be kept on file at the project.

- **RETRACTABLE LIFELINE SYSTEM**

  Retractable lifelines are devices that when properly used, will serve to stop the free fall of an employee prior to the employee striking a lower surface.

  - Retractable lifeline devices shall be attached to an anchorage point capable of supporting 5,000 pounds or designed and installed as part of a fall arrest system that maintains a safety factor of two (2).
  - Retractable lifelines shall be secured by, as a minimum 3/8" wire rope chokers or slings and 1/2" shackles. The slings and shackles designated for fall protection shall only be used for fall protection purposes and should be color-coded "RED" to readily identify them for that purpose. ROPE (synthetic or natural fiber) SHALL NOT BE USED TO SECURE THESE DEVICES.
  - A Competent Person(s), at least quarterly shall inspect all slings, chokers, and shackles.
  - Each retractable lifeline device shall be equipped with a rope tag line for extending the device to elevations below the point of attachment.
  - Retractable lifelines shall be placed above every temporary construction ladder that is to be used for repeated access/egress and exposes employees to a fall hazard greater than twelve feet (12'). The retractable device shall be attached in such a manner that it does not interfere with the employee who is using the ladder for access or egress.
  - A Competent Person shall inspect retractable lifeline systems, at least quarterly. The quarterly color code scheme shall be placed on the equipment to identify it as inspected and fit for continued use.
  - Retractable lifelines devices shall only be installed by employees specifically trained and Designated Competent for that task.
  - Retractable lifeline shall be attached directly to the full body harness. Attachment to a shock-absorbing lanyard is not acceptable.

- **Safety Monitoring**

  Where conventional fall protection is infeasible or creates a greater hazard at the leading edge and during initial connecting activity, to do this work using a safety monitoring system and expose only a minimum number of employees for the time necessary to actually accomplish the job.

  - The maximum number of workers to be monitored by one safety monitor is six (6).
  - Only designated employees that have been trained are permitted to enter the controlled access zones and work without the use of conventional fall protection.
  - The safety monitor shall be identified by wearing an high visible vest.

  Only individuals with the appropriate experience, skills, and training will be authorized to enter the controlled access zones and work. All employees that will be working under the safety monitoring system shall have been trained and instructed in the following areas:

  - Recognition of the fall hazards in the work area (at the leading edge and when making initial connections-point of erection).
  - Avoidance of fall hazards using established work practices, which have been made known to the employees.
  - Recognition of unsafe practices or working conditions that could lead to a fall, such as windy conditions.
  - The function, use, and operation of safety monitoring systems, guardrail systems, body belt/harness systems, control zones and other protection to be used.
  - The correct procedure for erecting, maintaining, disassembling and inspecting the system(s) to be used.

  A STA/toolbox safety meeting will take place prior to starting work involving all members of the crew and supervisors of any other concerned contractors. The supervisor in charge of the project will conduct this meeting.

  - During the STA/toolbox safety meeting sequences pertinent to this job will be thoroughly discussed and safety practices to be used throughout the project will be specified. All personnel will be informed that the controlled access zones are off limits to all personnel other than those specifically trained to work in that area.

- **Safety Monitoring System**

  A safety monitoring system means a fall protection system in which a competent person is responsible for recognizing and warning employees of fall hazards. The duties of the safety monitor are to:

  - Warn by voice when approaching the open edge in an unsafe manner.

- Warn by voice if there is a dangerous situation developing which cannot be seen by another person involved with product placement, such as a member getting out of control.
- Be competent in recognizing fall hazards.
- Warn employees when they appear to be unaware of a fall hazard or are acting in an unsafe manner.
- Be on the same walking/working surface as the monitored employees and within visual sighting distance of the monitored employees.
- Be close enough to communicate orally with the employees.
- Not allow other responsibilities to encumber monitoring. If the safety monitor becomes too encumbered with other responsibilities, the monitor shall (1) stop the work; and (2) turn over other responsibilities to someone specifically trained to work in that area; or (3) turn over the safety monitoring function to another designated, competent person.
- The safety monitoring system shall not be used when the wind is strong enough to cause loads with large surface areas to swing out of radius, or result in loss of control of the load, or when weather conditions cause the walking-working surfaces to become icy or slippery.

■ **Control Zone System (Warning Line System)**

A controlled access zone means an area designated and clearly marked in which leading edge work may take place without the use of guardrail, or personal fall arrest systems to protect the employees in the area. Control zone systems shall comply with the following provisions:

- When used to control access to areas where leading edge and other operations are taking place the controlled access zone shall be defined by a control line or by any other means that restricts access.
- When control lines are used, they shall be erected not less than 6 feet (l.8 m) nor more than 60 feet (18 m) or half the length of the member being erected, whichever is less, from the leading edge.
- The control line shall extend along the entire length of the unprotected or leading edge and shall be approximately parallel to the unprotected or leading edge.
- The control line shall be connected on each side to a guardrail system or wall.
- Control lines shall consist of ropes, wires, tapes, or equivalent materials, and supporting stanchions as follows:
  - Each line shall be flagged or otherwise clearly marked at not more than 6-foot (1.8 m) intervals with high-visibility material.
  - Each line shall be rigged and supported in such a way that its lowest point (including sag) is not less than 39 inches (1 m) from the walking/working surface and its highest point is not more than 45 inches (1.3 m) from the walking/working surface.

- Each line shall have a minimum breaking strength of 200 pounds (.88 kN).

■ **Personnel Restraint Systems**

Restraint systems are designed to restrain movement so that a fall is not possible. The system must have the capacity to withstand at least 3,000 pounds, or twice the maximum expected force that is needed to restrain the person from exposure to the fall hazard. In determining this force, consideration should be given to site specific factors such as, but not limited to, the force generated by a person walking, leaning, or even sliding down a steep roof.

## 5 TRAINING

**Training** in this procedure and the use, care and limitations of personal fall protection equipment is required for all new or existing employees whom must use this equipment. Employees who have not been trained in the use of personal fall protection equipment are not allowed to work on jobs requiring its use until trained by a competent person. Initial training and annual refresher training are required and must include the following per OSHA requirements:

- Recognition of the hazards of falling and the procedures to be followed to minimize these hazards.
- Proper wearing of body harnesses
- Proper attachment and anchorage of lifelines
- Proper equipment operation
- Inspection of lanyards, harnesses, lifelines and devices
- Proper care and storage of personal fall protection equipment
- Review of fall hazards in the work area.

Employee retraining must, at a minimum, occur under the following situations.

- Changes in the workplace make previous training obsolete
- Changes are made in the types of fall protection systems or equipment to be used
- Deficiencies are noted in an employee's knowledge or use of fall protection systems

### RECORDKEEPING

AC Corporation's employees must maintain a written certification/license for current training. This record should include the name of the employee trained, the expiration date(s) of the training, and the signature of the person who conducted the training.

### MANAGEMENT CONTROLS

- Documentation of all training as required.
- Supervision / Foreman must make observations to ensure compliance on any jobs involving the use of personal fall protection equipment.

Auditing to ensure compliance with this procedure will be as follows:

- Supervision / Foreman must make observations to ensure compliance on any jobs involving the use of personal fall protection equipment.
- Personnel responsible for personal fall protection equipment will conduct a quarterly audit/inspection, which lists the personal fall protection equipment on their project and the condition of each article.

**All records** required by this procedure will be kept in accordance with OSHA requirements.

## FALL PROTECTION SYSTEM INSPECTION FORM

| INSPECTED BY (Designated Competent Person) | | | | | | | | | | | | | DATE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AREA | | | | | | | | | | | | | CRAFT |
| BODY HARNESSES | | | | | | | | | | | | | |
| INSTRUCTIONS:<br>1. All parts of body harness and attachments are to be checked for excessive wear and damage.<br>2. This (OK) symbol is for YES or OK.<br>3. This (X) symbol is for NO or REPLACE.<br>4. Body harness(es) to be inspected monthly and report is to be turned in to Safety Department. | | | Harness Webbing or Leather | All Stitching | Rivets and Eyelets | D-ring(s) Buckle(s) (include tongue) | Body Pad (if applicable) | Lanyard | Hook Safety Latch (Positive Locking) | Certification or Data Tag | Personally Owned Belt | | |
| EMPLOYEE'S NAME | EMP. NUMBER | MFR'S. SERIAL # | | | | | | | | | | | |
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**Fall Protection Systems**

| SYSTEM | LOCATION | Yes | No | Good | Repair | Comments |
|---|---|---|---|---|---|---|
| Vertical Lifeline | | | | | | |
| Horizontal Lifeline | | | | | | |
| Warning Lines | | | | | | |
| Guard Rails | | | | | | |
| Retractable Lanyards | | | | | | |
| Hole Covers | | | | | | |
| Positioning Devices | | | | | | |

## 1 PURPOSE AND SCOPE

### Purpose

This procedure provides the guidelines for the selection and use of portable fire extinguishers.

### Scope

This procedure applies to all AC Corporation personnel and subcontractors working on projects where fire extinguisher requirements are applicable.

## 2 REFERENCES

- Title 29, Code of Federal Regulations, Parts 1910 and 1926, *Occupational Safety and Health Administration* (OSHA), U.S. Department of Labor.
- National Fire Protection Association (NFPA), National Fire Codes.

## 3 GENERAL

The four factors for a fire are: heat, fuel, oxygen, and chain reaction. Removal of any one of the four will extinguish a fire. Fire extinguishers cool, smoother, or inhibit chemical chain reaction. Another method is to remove or shut off the fuel supply.

There are many models, sizes, and makes of fire extinguishers; some are for general use and some for specific purposes. Their portability and availability ensure that fire extinguishers are quick, effective deterrents against fires.

### Definitions

None

### Responsibilities

The Site *Supervisor* / *Forman* is responsible for implementing and enforcing this procedure.

The *Safety Director* or the Site Supervisor / Foreman is responsible for and monitoring compliance with this procedure.

The *Employee* is responsible for working within their qualifications and following AC Corporation procedures.

## 4 PROCEDURE

### Classification of Fires

- Class A fires occur in wood, rubber, paper, cloth, and most plastics. The most effective type of extinguishing agent is one using water or solutions containing large concentrations of water, because the "quenching-cooling" effect reduces the temperature of the burning material below its ignition temperature. Fire extinguishers suitable for this type of fire are designated with the classification "A" on the label.
- Class B fires occur in flammable or combustible liquids such as petroleum products and greases. A "blanketing-smothering" effect of an agent that excludes oxygen or

inhibits the chemical chain reaction is the most effective. Extinguishers labeled "Class B" employ carbon dioxide, dry chemical, Halon, or foam.

- Class C fires involve energized electrical equipment. The extinguishing agent must be nonconductive. Carbon dioxide, dry chemical and halon are the normal types used for electrical fires.
- Class D fires involve combustible metals such as aluminum, magnesium, zirconium, and titanium. The use of water and some of the other conventional types of extinguishing agents are ineffective and may even cause a violent reaction. These fires can be extinguished with specially prepared agents. Where these hazards exist, extinguishing agents with the "D" class rating should be provided.
- Because of their standard design and manufacturer, portable fire extinguishers are familiar to all. This, along with a wide range of applicability and portability, may create a security problem. Because the predominant fire peril on most construction sites is a Class A fire, there are some alternatives to the standard equipment.

**Type of Fire Extinguishers**

The following types of fire extinguishers are used for Class A, B, C, and D fires:

— Water - May be stored pressure, pump tank, or cartridge operated. These are to be used on Class A fires only by themselves. They may also be used for cooling purposes in combination with other fires, but never on electrical fires nor flammable liquids. Water extinguishers must be protected against freezing. Stored pressure type is recommended.

— Dry Chemical - May be used on Class B and C fires. Many multipurpose types are effective on Class A fires and these are highly recommended.

— Special Extinguishers may be used on Class D fires.

Water and foam extinguishers will reach approximately 25-35 ft; carbon dioxide has a range of about 5 ft, and dry chemical will reach from 5 ft to 20 ft depending upon size.

The effectiveness of carbon dioxide and dry chemical fire extinguishers is decreased in windy conditions.

**Fire Extinguisher Operation**

Directions for fire extinguisher operation are printed on the nameplate. When indoors, a safe and clear means of exit shall be maintained at all times. Fires shall be fought from upwind of the smoke and fumes, extinguishing at the base of the fire and working up. After a fire is put out, a watchman should stand by for possible re-ignition until it has cooled.

**Equipment Inspection**

Fire extinguishers are inspected monthly by an AC Corporation employee and by an certified external entity annually.

## 5 TRAINING

Employees whose job assignment requires them to use a fire extinguisher will be provided training initially and then at least annually in the use of a fire extinguisher.

**Inspection Guide**

1. Ensure access to the extinguisher is not blocked

2. The pressure should be within the recommended level on extinguishers equipped with a gauge. The needle should be in the green zone. If the needle is not in **green zone**, the extinguisher requires professional maintenance; report this information to the Safety Department (336-271-6235).

3. Verify the locking pin is intact and the tamper seal is not broken. No wire, wire tie or tape holding pin.

4. Visually inspect the hose and nozzle to ensure they are in good condition, showing no signs of cracking or dry rot. Label plate is legible and attached.

5. Visually inspect the extinguisher for dents, leaks, rust, chemical deposits, damaged, needs recharging report or other signs of abuse/wear and note any findings and report to the Safety Department. (336-271-6235).

6. Check the inspection tag for previous and required inspection, maintenance, or charging and sign and date your inspection.

## PORTABLE FIRE EXTINGUISHER INSPECTION REPORT

Location _____ Date _____

| Maker or Extinguisher Manufacturer | Size 2 ½ gal. 5, 10, 15, 20 lb. | Type Water, Foam, Loaded Steam, $CO_2$ Dry Chem. | Fully Charged or $CO_2$ Weight | Where located in building (1) | Method of Marking Location (2) | Tags for Periodic & Hydrostatic Test | General Condition of Extinguisher (3) | Remarks |
|---|---|---|---|---|---|---|---|---|
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(1) Actual location, building and floor
(2) (A) Red extinguisher (B) Background painted red (C) Directional signs
(3) Nameplate in place, paint, hoses, handles, physical damage, tags, seals, etc.

Signed _____

## 1 PURPOSE AND SCOPE

### Purpose

This procedure provides the guidelines for the care and treatment of employees who have incurred an occupational injury or illness and establishes the recording and reporting requirements thereof.

### Scope

This procedure applies to all AC Corporation personnel and subcontractors working on projects where first aid administration requirements are applicable.

## 2 REFERENCES

Title 29, Code of Federal Regulations, Parts 1910 and 1926, *Occupational Safety and Health Administration* (OSHA), U.S. Department of Labor.

## 3 GENERAL

A valid certified first aid (American Red Cross or Equivalent) attendant(s) shall be accessible if have the duty of rendering first aid to victims of occupational injuries or illnesses contracted while at work.

- A volunteer trained first aid team shall be available to render first aid care promptly (3-5 minutes) at the scene of the accident and whenever necessary.
- Hospitals and clinics shall be chosen to handle emergency cases. Arrangements shall be made for use of local ambulance services.

First aid kits shall consist of appropriate items which will be adequate for the environment in which they are used. Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities shall be provided within the work area. Construction operations, items shall be stored in a weatherproof container, or in the field office, with individual sealed packages of each type of item. First aid kits shall be inspected before they are sent to jobsites and then at least weekly.

### Responsibilities

- The *Job Site Superintendent or Foreman* is responsible for implementing, enforcing and monitoring this procedure in their job site.
- The *Safety Director* is responsible for maintaining the injury records.
- The *First Aid Responder* is responsible for performing duties within the limits of their training.

## 4 PROCEDURE

All first aid care shall be performed in a thorough and professional manner. Individuals who need treatment beyond normal first aid care shall be sent or transported to a physician. First aid supplies shall be easily accessible when required.

- Individuals who request treatment for personal injury or illness from incidents that did not arise in the course of their employment on the project shall not be treated at the project but shall be referred to their personal physicians.

- The site foreman shall be consulted to determine questionable cases.

## Dispensing of Medication

Medication such as aspirin, ointments, or solutions of medicines shall not be dispensed, however they can be made available.

Medications such as cold tablets, decongestants, antacids, etc., shall not be dispensed, however they can be made available.

## Medical Record Administration

Adequate records of all reported injuries and illnesses shall be maintained by the site foreman. The time, date, nature, extent, and cause of injury or illness shall be documented on the established reporting forms. This includes both job related cases and reported personal conditions. It is mandatory that precise information be obtained in each reported case.

All medical records shall be considered confidential and shall not be seen or reviewed by unauthorized personnel. Anyone other than authorized personnel wishing to see or review medical records shall obtain permission through the injured employee(s).

## First Aid Facilities

The following guidelines shall be adhered to in the conduct of the daily first aid facility activities:

- The first aid equipment shall be kept clean and arranged neatly.
- All preapproved first aid supplies shall be ordered on a Field Purchase Requisition by the site foreman.
- All personnel requiring treatment shall contact the site foreman or the site certified first aid attendant.
- The site foreman shall determine the method of transporting the injured person to a first aid facility.

## Records

First aid records are not only confidential, but also are most important in assisting the accident prevention activities on the job. The following records shall be maintained by in confidential files as necessary:

- Project First Aid Log
- OSHA Form No. 300, Log and Summary of Occupational Injuries and Illnesses
- Employer's First Report of Injury/Illness

### *OSHA Recordkeeping Procedures*

Regulations established by the Occupational Safety and Health Act of 1970 (OSHA) requires employers to prepare and maintain records of occupational injuries and illness. In addition, the Act requires the reporting of fatal or serious injuries to the U. S. Department of Labor. Minor injuries requiring first aid treatment only are not

reported. All reports must be on forms approved by the Department of Labor or on applicable State forms.

## Reporting Accidents

All injuries shall be reported without delay to the site foreman. All minor injuries shall be properly treated and the employee's supervisor, who shall observe and follow up on the injury, should make a report. A designated employee will be responsible to administer or assist in administering first aid to any injured co-worker.

- When the services of a physician are necessary, a physician designated by AC Corporation shall be used when possible.
- The site foreman will complete, on the same day as the accident occurs, a report referred to as the Incident Investigation Report.
  - This report will then be turned in to the Human Resource department where a detailed accident report will be completed for the insurance carrier.
- It is the responsibility of subcontractors to contact AC Corporation's onsite foreman or the project manager when their employee experiences an incident.
- When a subcontractor experiences an incident it is their responsibility to document the incident and give a copy to the report to AC Corporation's foreman.

Reported by:_____Witnesses:_____AC Employee ( ) Agency Employee ( )
Project Manager _____ OSHA ( ) First Aid ( ) Report Only ( )
Foreman: _____ Went to Dr._____/Hospital_____

**AC CORPORATION**

**FIRST REPORT OF AN ACCIDENT**

NAME OF INJURED_____
DEPT. & NO._____OCCUPATION/POSITION_____JOB NAME & NO_____
DAY & DATE OF INJURY_____TIME OF INJURY_____AM / PM
LOCATION OF ACCIDENT (City/State/County)_____
DATE REPORTED TO SUPERVISOR_____DATE DISABILITY BEGAN_____
NATURE OF INJURY (Cut, Bruise, Fall, Eye, Etc.)_____
PART OF BODY INJURED (Be Specific; Right hand, etc.)_____
SUTURES REQUIRED?_____ ANTIBIOTIC PRESCRIBED_____ MODIFIED DUTY_____
MEDICAL TREATMENT FACILITY_____

DESCRIPTION OF ACCIDENT (Describe what employee was doing and how accident occurred)_____

WAS SAFETY APPLIANCE PROVIDED?_____WAS IT IN USE AT THE TIME?_____
DID UNSAFE ACT OF THE EMPLOYEE CAUSE OR CONTRIBUTE TO THE ACCIDENT? IF SO, EXPLAIN:_____

WHAT ACTION HAVE YOU TAKEN OR DO YOU RECOMMEND TO PREVENT A SIMILAR ACCIDENT?_____

SUPERVISOR_____DATE_____
FORM COMPLETED BY_____DATE_____

**FOR OFFICE USE ONLY**

SOCIAL SECURITY NUMBER_____DOB_____DOH _____
HOURLY WAGE_____ACTUAL AVERAGE WAGE_____
MALE ( ) FEMALE ( ) MARRIED ( ) SINGLE ( ) LEGALLY SEPARATED ( ) DIVORCED ( )
ADDRESS_____

PHONE (336)_____
(N:BENEFITS/Wc/FIRSTRPT – Revised 3/02)

## 1 PURPOSE AND SCOPE

- **Purpose**

The purpose of this section is to promote the safe use of, and to reduce the likelihood of injuries involving the use of hand or power tools.

- **Scope**

These requirements apply to all AC Corporation employees and subcontractors where the use of hand or power tools are in use or will be used. This will most notably apply to employees involved in industrial, maintenance, and construction labor trade areas.

## 2 REFERENCES

- Title 29, Code of Federal Regulations, Parts 1926, *Occupational Safety and Health Administration* (OSHA), U.S. Department of Labor.
- National Fire Protection Association (NFPA), National Fire Codes.
- 1926.300 General Requirements
- 1926.301 Hand Tools
- 1926.302 Power-operated Hand Tools
- 1926.303 Abrasive Wheels and Tools
- 1926.304 Woodworking Tools
- 1926.305 Jacks – Lever and Rachet, Screw, and Hydraulic
- 1926.306 Air Receiver Tools
- 1926.307 Mechanical Power-transmission Apparatus FR:

## 3 GENERAL

There are many models, sizes, and makes of fire extinguishers; some are for general use and some for specific purposes. Their portability and availability ensure that fire extinguishers are quick, effective deterrents against fires.

- **Definitions**

None

- **Responsibilities**

The Job Site Superintendent or Foreman is responsible for implementing, enforcing and monitoring this procedure in their job site.

The *Safety Director* is responsible for training compliance with this procedure and updating the policy as required.

The Employee is responsible for working within their qualifications and following AC Corporation procedures.

## 4 PROCEDURE

### Hazard Recognition

Tools are such a common part of our lives that it is difficult to remember that they may pose hazards. All tools are manufactured with safety in mind but, tragically, a serious accident often occurs before steps are taken to search out and avoid or eliminate tool-related hazards.

In the process of removing or avoiding the hazards, workers must learn to recognize the hazards associated with the different types of tools and the safety precautions necessary to prevent those hazards.

### Hand and Tools

Hand tools are non-powered. They include anything from axes to wrenches. The greatest hazards posed by hand tools result from misuse and improper maintenance.

Some examples:

- Using a screwdriver as a chisel may cause the tip of the screwdriver to break and fly, hitting the user or other employees.
- If a wooden handle on a tool such as a hammer or an axe is loose, splintered, or cracked, the head of the tool may fly off and strike the user or another worker.
- A wrench must not be used if its jaws are sprung, because it might slip.
- Impact tools such as chisels, wedges, or drift pins are unsafe if they have mushroomed heads. The heads might shatter on impact, sending sharp fragments flying.
- AC Corporation is responsible for the safe condition of tools and equipment used by employees but the employees have the responsibility for properly using and maintaining tools.
- Saw blades, knives, or other tools be directed away from aisle areas and other employees working in close proximity. Knives and scissors must be sharp. Dull tools can be more hazardous than sharp ones.
- Appropriate personal protective equipment, e.g., eye / face protection, gloves, etc., should be worn due to hazards that may be encountered while using portable power tools and hand tools.
- Housekeeping is important, work areas, floors should be kept clean and dry as possible to prevent accidental slips with or around dangerous hand tools.
- Around flammable substances, sparks produced by iron and steel hand tools can be a dangerous ignition source. Where this hazard exists, spark-resistant tools made from brass, plastic, aluminum, or wood will be used.

**Power Tool Precautions**

Power tools can be hazardous when improperly used. There are several types of power tools, based on the power source they use: electric, pneumatic, liquid fuel, hydraulic, and powder-actuated.

Employees should be trained in the use of all tools - not just power tools. They should understand the potential hazards as well as the safety precautions to prevent those hazards from occurring.

The following general precautions should be observed by power tool users:

- Never carry a tool by the cord or hose.
- Never yank the cord or the hose to disconnect it from the receptacle.
- Keep cords and hoses away from heat, oil, and sharp edges.
- Disconnect tools when not in use, before servicing, and when changing accessories such as blades, bits and cutters.
- All observers should be kept at a safe distance away from the work area.
- Secure work with clamps or a vise, freeing both hands to operate the tool.
- Avoid accidental starting. The worker should not hold a finger on the switch button while carrying a plugged-in tool.
- Tools should be maintained with care. They should be kept sharp and clean for the best performance. Follow instructions in the user's manual for lubricating and changing accessories.
- Be sure to keep good footing and maintain good balance.
- The proper apparel should be worn. Loose clothing, ties, or jewelry can become caught in moving parts.
- All portable electric tools that are damaged shall be removed from use and tagged "Do Not Use."

**Guards**

Hazardous moving parts of a power tool need to be safeguarded. For example, belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains, or other reciprocating, rotating, or moving parts of equipment must be guarded if such parts are exposed to contact by employees.

Guards, as necessary, should be provided to protect the operator and others from the following:

- point of operation,
- in-running nip points,
- rotating parts, and
- flying chips and sparks.

Safety guards must never be removed when a tool is being used. For example, portable circular saws must be equipped with guards. An upper guard must cover the entire blade of the saw. A retractable lower guard must cover the teeth of the saw, except when it makes contact with the work material. The lower guard must automatically return to the covering position when the tool is withdrawn from the work.

**Safety Switches**

The following hand-held powered tools must be equipped with a momentary contact "on-off" control switch: drills, tappers, fastener drivers, horizontal, vertical and angle grinders with wheels larger than 2 inches in diameter, disc and belt sanders, reciprocating saws, saber saws, and other similar tools. These tools also may be equipped with a lock-on control provided that turnoff can be accomplished by a single motion of the same finger or fingers that turn it on.

The following hand-held powered tools may be equipped with only a positive "on-off" control switch: platen sanders, disc sanders with discs 2 inches or less in diameter; grinders with wheels 2 inches or less in diameter; routers, planers, laminate trimmers, nibblers, shears, scroll saws and jigsaws with blade shanks <-inch wide or less.

Other hand-held powered tools such as circular saws having a blade diameter greater than 2 inches, chain saws, and percussion tools without positive accessory holding means must be equipped with a constant pressure switch that will shut off the power when the pressure is released.

**Electrical Tools**

Employees using electric tools must be aware of several dangers; the most serious is the possibility of electrocution.

Among the chief hazards of electric-powered tools are burns and slight shocks which can lead to injuries or even heart failure. Under certain conditions, even a small amount of current can result in fibrillation of the heart and eventual death. A shock also can cause the user to fall off a ladder or other elevated work surface.

To protect the user from shock, tools must either have a three-wire cord with ground and be grounded, be double insulated, or be powered by a low-voltage isolation transformer. Three-wire cords contain two current-carrying conductors and a grounding conductor. One end of the grounding conductor connects to the tool's metal housing. The other end is grounded through a prong on the plug. Anytime an adapter is used to accommodate a two-hole receptacle, the adapter wire must be attached to a known ground. The third prong should never be removed from the plug.

Double insulation is more convenient. The user and the tools are protected in two ways: by normal insulation on the wires inside, and by a housing that cannot conduct electricity to the operator in the event of a malfunction.

These general practices should be followed when using electric tools:

- Electric tools should be operated within their design limitations.

- Gloves and safety footwear are recommended during use of electric tools.
- When not in use, tools should be stored in a dry place.
- Electric tools should not be used in damp or wet locations.
- Work areas should be well lighted.

**Powered Abrasive Wheel Tools**

Powered abrasive grinding, cutting, polishing, and wire buffing wheels create special safety problems because they may throw off flying fragments.

Before an abrasive wheel is mounted, it should be inspected closely and sound- or ring-tested to be sure that it is free from cracks or defects. To test, wheels should be tapped gently with a light non-metallic instrument. If they sound cracked or dead, they could fly apart in operation and so must not be used. A sound and undamaged wheel will give a clear metallic tone or "ring."

To prevent the wheel from cracking, the user should be sure it fits freely on the spindle. The spindle nut must be tightened enough to hold the wheel in place, without distorting the flange. Follow the manufacturer's recommendations. Care must be taken to assure that the spindle wheel will not exceed the abrasive wheel specifications.

Due to the possibility of a wheel disintegrating (exploding) during start-up, the employee should never stand directly in front of the wheel as it accelerates to full operating speed.

Portable grinding tools need to be equipped with safety guards to protect workers not only from the moving wheel surface, but also from flying fragments in case of breakage.

In addition, when using a powered grinder:

- Always use eye protection.
- Turn off the power when not in use.
- Never clamp a hand-held grinder in a vise.

**Pneumatic Tools**

Pneumatic tools are powered by compressed air and include chippers, drills, hammers, and sanders.

There are several dangers encountered in the use of pneumatic tools. The main one is the danger of getting hit by one of the tool's attachments or by some kind of fastener the worker is using with the tool.

Eye protection is required and face protection is recommended for employees working with pneumatic tools.

Noise is another hazard. Working with noisy tools such as jackhammers requires proper, effective use of hearing protection.

When using pneumatic tools, employees must check to see that they are fastened securely to the hose to prevent them from becoming disconnected. A short wire or

positive locking device attaching the air hose to the tool will serve as an added safeguard.

A safety clip or retainer must be installed to prevent attachments, such as chisels on a chipping hammer, from being unintentionally shot from the barrel.

Screens must be set up to protect nearby workers from being struck by flying fragments around chippers, riveting guns, staplers, or air drills.

Compressed air guns should never be pointed toward anyone. Users should never "dead-end" it against themselves or anyone else.

**Powered- Actuated Tools**

Powder-actuated tools operate like a loaded gun and should be treated with the same respect and precautions. In fact, they are so dangerous that they must be operated only by specially trained employees.

Safety precautions to remember include the following:

- These tools should not be used in an explosive or flammable atmosphere.
- Before using the tool, the worker should inspect it to determine that it is clean, that all moving parts operate freely, and that the barrel is free from obstructions.
- The tool should never be pointed at anybody.
- The tool should not be loaded unless it is to be used immediately. A loaded tool should not be left unattended, especially where it would be available to unauthorized persons.
- Hands should be kept clear of the barrel end. To prevent the tool from firing accidentally, two separate motions are required for firing: one to bring the tool into position, and another to pull the trigger. The tools must not be able to operate until they are pressed against the work surface with a force of at least 5 pounds greater than the total weight of the tool.

If a powder-actuated tool misfires, the employee should wait at least 30 seconds, then try firing it again. If it still will not fire, the user should wait another 30 seconds so that the faulty cartridge is less likely to explode, than carefully remove the load. The bad cartridge should be put in water.

Suitable eye and face protection are essential when using a powder-actuated tool.

The muzzle end of the tool must have a protective shield or guard centered perpendicularly on the barrel to confine any flying fragments or particles that might otherwise create a hazard when the tool is fired. The tool must be designed so that it will not fire unless it has this kind of safety device.

All powder-actuated tools must be designed for varying powder charges so that the user can select a powder level necessary to do the work without excessive force.

If the tool develops a defect during use it should be tagged and taken out of service immediately until it is properly repaired.

**Fasteners**

When using powder-actuated tools to apply fasteners, there are some precautions to consider. Fasteners must not be fired into material that would let them pass through to the other side. The fastener must not be driven into materials like brick or concrete any closer than 3 inches to an edge or corner. In steel, the fastener must not come any closer than one-half inch from a corner or edge. Fasteners must not be driven into very hard or brittle materials which might chip or splatter, or make the fastener ricochet.

An alignment guide must be used when shooting a fastener into an existing hole. A fastener must not be driven into a spalled area caused by an unsatisfactory fastening.

**Hydraulic** Power Tools

The fluid used in hydraulic power tools must be an approved fire-resistant fluid and must retain its operating characteristics at the most extreme temperatures to which it will be exposed.

The manufacturer's recommended safe operating pressure for hoses, valves, pipes, filters, and other fittings must not be exceeded.

**Jacks**

All jacks - lever and ratchet jacks, screw jacks, and hydraulic jacks - must have a device that stops them from jacking up too high. Also, the manufacturer's load limit must be permanently marked in a prominent place on the jack and should not be exceeded.

A jack should never be used to support a lifted load. Once the load has been lifted, it must immediately be blocked up.

Use wooden blocking under the base if necessary to make the jack level and secure. If the lift surface is metal, place a 1-inch-thick hardwood block or equivalent between it and the metal jack head to reduce the danger of slippage.

To set up a jack, make certain of the following:

- the base rests on a firm level surface,
- the jack is correctly centered,
- the jack head bears against a level surface, and
- the lift force is applied evenly.

Proper maintenance of jacks is essential for safety. All jacks must be inspected before each use and lubricated regularly. If a jack is subjected to an abnormal load or shock, it should be thoroughly examined to make sure it has not been damaged.

Hydraulic jacks exposed to freezing temperatures must be filled with an adequate antifreeze liquid.

**General Safety Precautions**

Employees who use hand and power tools and who are exposed to the hazards of falling, flying, abrasive and splashing objects, or exposed to harmful dusts, fumes, mists, vapors, or gases must be provided with the particular personal equipment necessary to protect them from the hazard.

All hazards involved in the use of power tools can be prevented by following five basic safety rules:

- Keep all tools in good condition with regular maintenance.
- Use the right tool for the job.
- Examine each tool for damage before use.
- Operate according to the manufacturer's instructions.
- Provide and use the proper protective equipment.

Employees and employers have a responsibility to work together to establish safe working procedures. If a hazardous situation is encountered, it should be brought to the attention of the proper individual immediately.

# 1 PURPOSE AND SCOPE

## Purpose

This procedure provides the guidelines to protect the safety and health of all employees through the identification, communication, dissemination of material safety data sheet information, container labeling, and employee training in the safe use of toxic or hazardous substances used on AC Corporation projects.

## Scope

This procedure applies to all AC Corporation personnel and subcontractors working on jobsites where the requirements of a Hazard Communication Program are applicable.

# 2 REFERENCES

- Title 29, Code of Federal Regulations (CFR), Parts 1910 and 1926, *Occupational Safety and Health Administration* (OSHA), U.S. Department of Labor.

# 3 GENERAL

The Occupational Safety and Health Administration (OSHA) revised its Hazard Communication Standard (HCS) to apply to all contractors with employees who may be exposed to hazardous chemicals in their workplaces. Expansion of the scope of the HCS requires contractors to establish hazard communication programs, which transmit information on the hazards of chemicals to their employees by means of labels on containers, material safety data sheets, and training programs. For non-English speaking employees all applicable information within this procedure on the hazards of chemicals to employees by means of labels on containers, material safety data sheets, and training programs shall be presented in their native language, through an interpreter/intermediary or any other means of communication/media.

## Definitions

- *CAS Number* - The identification number assigned by the Chemical Abstracts Service to specific chemical substances.
- *Chemical Name* - The scientific designation of a substance in accordance with the nomenclature system developed by the International Union of Pure and Applied Chemistry or the system developed by the Chemical Abstracts Service.
- *Common Name* - Any designation or identification, such as code name, code number, trade name, or brand name, used to identify a substance other than by its chemical name.
- *Material Safety Data Sheet (MSDS)* - The written document which sets forth the specific information about a toxic or hazardous substance.
- *Technically Qualified Individual* - A person who, because of education, training, or experience, understands the health risks associated with the toxic or hazardous substance or mixture handled by or under his or her supervision, and is familiar

with the personal protective procedures to be followed in the use and handling of such substance.

- *Toxic or Hazardous Substance* - Any gas, liquid, or solid which, through its chemical proportions, produces injurious or lethal effects upon contact with body cells during normal operations.

■ **Responsibilities**

- The Job Site Superintendent or Foreman is responsible for implementing, enforcing and monitoring this procedure in their job site.
- The *Safety Director* is responsible for training compliance with this procedure.
- The Employee is responsible for working within their qualifications and following AC Corporation procedures.

## 4 PROCEDURE

Each site will comply with and maintain this program for the safe use of toxic and hazardous substances, which specifically addresses the following elements:

- Labeling
- Material Safety Data Sheets
- Training
- Effect on State Right-to-Know Laws
- Filing and Retention of Data

**Labeling**

- Each container of hazardous material on the project must be labeled. Hazardous materials received at the project without proper labels shall be set aside and not distributed for use until properly labeled.
- Labels shall be prominently located on the container in its upright position when the container is in its usual position for use, so as to be legible.
- The chemical name, if applicable, of the toxic or hazardous substance, in English and on a distinctly contrasting background, shall be affixed to the container.
- Labels on containers exposed to the weather shall be such that the reading material is clear and conspicuous at all times and shall not be defaced or obliterated by rain, snow, or other adverse elements of the weather.
- If a labeled container is covered by a secondary container or a covering that remains in place while the contents of the container are withdrawn or used, the required labels shall also appear on the secondary container or covering.
- Containers of mixtures shall be labeled with the chemical name listed on the MSDS for each toxic or hazardous substance in the mixture. It is recommended that containers of mixtures also be labeled with the common name of the mixture.

- All portable containers into which hazardous chemicals are transferred and which are intended only for the immediate use of the employee who performs the transfer should also be identified as to their contents. (Examples: acetone, gasoline, etc.)
- Unlabeled containers found in the workplace shall be tested and labeled accordingly or disposed of properly.
- Labels shall be legible, in English. However, for non-English speaking employees, information shall be presented in their language as well.

**Material Safety Data Sheets**

- A complete survey shall be conducted to determine what hazardous substances are present on the jobsite. A complete and current MSDS for each hazardous substance used shall be on hand or requested from the manufacturer.
- Purchasing personnel shall inform chemical manufacturers, importers, and distributors to ensure that MSDSs are provided with their shipments of hazardous chemicals.
- Materials shall not be used on a jobsite unless a MSDS is available on site.
- If the MSDS is not available at the project:
    - Contact AC Corporation Safety Director office and purchasing/material control personnel, or
    - Contact the manufacturer for the MSDS.

## 5 Training

- The Safety Director or Representative shall train employees in the proper use of any toxic or hazardous substances to be used on the jobsite. The Safety Director or Safety Representative shall then determine what protective equipment is required and take measures to arrange for it to be available.
- Specific training for non-routine tasks (for example, the cleaning of tanks or reactor vessels) and the hazards associated with chemicals contained in unlabeled pipes in the employees' immediate work area shall be provided. The Site Project Manager shall be responsible for identifying training needs prior to commencing work and shall share the actual training activities with the Safety Director.

**Effect on State Right-to-Know Laws**

- The HCS preempts all state (in states without OSHA-approved job safety and health programs) or local laws which relate to an issue covered by the federal standard without regard to whether the state law would conflict with, complement, or supplement the federal standard, and without regard to whether the state law appears to be “at least as effective as” the federal standard.
- The only state worker right-to-know laws authorized would be those established in states and jurisdictions that have OSHA-approved state programs. These states and jurisdictions currently include Alaska, Arizona, California, Connecticut, Hawaii,

Indiana, Iowa, Kentucky, Maryland, Michigan, Minnesota, Nevada, New Mexico, New York, North Carolina, Oregon, Puerto Rico, South Carolina, Tennessee, Utah, Vermont, Virgin Islands, Virginia, Washington, and Wyoming.

**Filing and Retention of Data**

All hazard communication instruction, training, and retraining records shall be forwarded to the AC Corporation Document Control Department for long-term storage.

## Chemical Inventory Report Form

**Page ___ of ____ Date of Inventory _____ Job#: _____**

**Supervisor:**

| Actual Count | Max Amt. | Chemical Name | Common Name | Container | | CAS Number | Manufacturer | NFPA Rating | MSDS | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Size | Type | | | | Yes | No |
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SAMPLE MSDS

# Material Safety Data Sheet

May be used to comply with

OSHA's Hazard Communication Standard, 29 CFR 1910.1200. This Standard must be consulted for specific requirements.

# U.S. Department of Labor

Occupational Safety and Health Administration
(Non-Mandatory Form)
Form Approved
OMB No. 1218-0072

| IDENTITY *(As Used on Label and List)* | Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that. |
|---|---|

**Section I**

| Manufacturer's Name | Emergency Telephone Number |
|---|---|
| Address *(Number, Street, City, State, and ZIP Code)* | Telephone Number for Information |
| | Date Prepared |
| | Signature of Preparer *(optional)* |

**Section II - Hazard Ingredients/Identity Information**

| Hazardous Components (Specific Chemical Identity; Common Name(s)) | OSHA PEL | ACGIH TLV | Other Limits Recommended | % *(optional)* |
|---|---|---|---|---|
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**Section III - Physical/Chemical Characteristics**

| | | | |
|---|---|---|---|
| Boiling Point | | Specific Gravity ($H_2O$ = 1) | |
| Vapor Pressure (mm Hg.) | | Melting Point | |
| Vapor Density (AIR = 1) | | Evaporation Rate (Butyl Acetate = 1) | |
| Solubility in Water | | | |
| Appearance and Odor | | | |

**Section IV - Fire and Explosion Hazard Data**

| | | | |
|---|---|---|---|
| Flash Point (Method Used) | Flammable Limits | LEL | UEL |
| Extinguishing Media | | | |
| Special Fire Fighting Procedures | | | |
| | | | |
| Unusual Fire and Explosion Hazards | | | |
| | | | |

**Section V - Reactivity Data**

| | | | |
|---|---|---|---|
| Stability | Unstable | | Conditions to Avoid |
| | Stable | | |
| Incompatibility *(Materials to Avoid)* | | | |
| Hazardous Decomposition or Byproducts | | | |
| Hazardous Polymerization | May Occur | | Conditions to Avoid |
| | Will Not Occur | | |

**Section VI - Health Hazard Data**

| Route(s) of Entry: | Inhalation? | Skin? | Ingestion? |
|---|---|---|---|
| Health Hazards *(Acute and Chronic)* | | | |
| | | | |
| | | | |
| Carcinogenicity: | NTP? | IARC Monographs? | OSHA Regulated? |
| | | | |
| Signs and Symptoms of Exposure | | | |
| | | | |
| Medical Conditions<br>Generally Aggravated by Exposure | | | |
| | | | |
| Emergency and First Aid Procedures | | | |
| | | | |

**Section VII - Precautions for Safe Handling and Use**

| Steps to Be Taken in Case Material is Released or Spilled |
|---|
| |
| |
| Waste Disposal Method |
| |
| Precautions to Be taken in Handling and Storing |
| |
| Other Precautions |
| |

**Section VIII - Control Measures**

| | | |
|---|---|---|
| Respiratory Protection *(Specify Type)* | | |
| Ventilation | Local Exhaust | Special |
| | Mechanical *(General)* | Other |

| | |
|---|---|
| Protective Gloves | Eye Protection |
| Other Protective Clothing or Equipment | |
| Work/Hygienic Practices | |

**Section IX - Special Precautions**

| |
|---|
| Precautions to be taken in Handling and Storing |
| Other Precautions |

Each MSDS must be reviewed for correctness and completeness every three years.

Reviewed by _____ Reviewed by _____

Revision date _____ Revision date _____

## 1 PURPOSE AND SCOPE

### ■ Purpose

This procedure provides the requirements for investigating all site accidents that result in recordable or lost time injuries/illnesses, and property damage.

### ■ Scope

This procedure applies to all AC Corporation personnel and subcontractors working on projects where accident/ incident investigation requirements are applicable.

## 2 REFERENCES

None

## 3 GENERAL

The commitment to careful reporting and investigation of all accidents/ incidents involving, or potentially involving, injury, property damage, and production interruption is a major factor in accident/incident prevention. The accident/ incident investigation, root cause analysis process, provides the accurate, timely information needed to prevent recurrences.

Investigation itself is not accident/incident prevention. Investigation provides information about improper work habits, conditions, or methods, which can be corrected to prevent other similar happenings.

Medical attention will be administered by certified first air responder(s). If additional medical attention is required the Site foreman will make arrangements to contact 911.

## 4 RESPONSIBILITIES

- The *Job Site Superintendent or Foreman* is responsible for implementing, enforcing, investigating, filling out all required report and monitoring this procedure on their job site.
- The *Safety Director* is responsible for providing accident investigation training to responsible personnel, assist in data collection and maintaining OSHA 300 log.
- The *Employee* is responsible for working within their qualifications and following AC Corporation procedures.
- The *Witnesses and Injured Victims* are responsible for reporting all knowledge of the incident to the responding investigator.

## 5 PROCEDURE

- The investigation shall be conducted to the extent deemed necessary by the *Job Site Superintendent or Foreman* and or the Safety Director. This procedure affects contractor employee accidents/incidents with respect to the investigation performed by the investigator(s).

### ■ Accident/Incident Investigation

The investigation shall begin as soon after the accident/incident as possible and at least within one day after the accident/incident. The passage of time delays preventive action and causes the facts to become shaded, distorted, and erased. The Site Supervisor / Foreman shall coordinate efforts. The following information is critical:

- The date, time, and location of the accident/incident and names of injured persons shall be recorded.
- The accident/incident scene shall be barricaded until all investigations are completed. The only disturbances to the accident/incident scene shall be those necessary to prevent further injury and damage.
- Photographs of the scene shall be taken on the same day of the accident / incident or immediately thereafter if possible. Photographs shall be taken from all angles, including the adjacent environment (general surroundings) if contributory to the accident/incident.
- The injured shall be questioned as early as possible. An immediate account is most important, especially if there are no other witnesses.
- Witnesses shall be questioned on what they saw and heard and where they were at the time of the accident/ incident.
- Accurate measurements shall be made of sizes, weights, and distances of accident/ incident-related factors.
- The adequacy of lighting, orderliness of work area, possible adjacent distractions, and unusual weather conditions, including temperature, wind, and precipitation, shall be noted.
- The accident victim's age, sex, experience, length of employment, craft, injury record, social security number, and home address shall be obtained. The following personal factors should be noted and verified: attitude, skill, knowledge, reaction rate, agility, strength, and the fatigue factor at the time of the accident.
- Explain the nature of the work being done at the time of and immediately prior to the accident/incident.
- Determine whether the work was normally scheduled, unscheduled, emergency, or an extremely urgent job.
- Relate the instructions which were issued to the crews and employees directly involved, especially the Safety Task Analysis (STA).
- State the personal protective equipment (PPE) required and used.

## Reporting

All accidents and near misses shall be reported to the superintendent/foreman and general contractor immediately and followed up with an investigation. A written report shall completed be submitted to general contractor and owner client within 8 hours.

Within 8 hours after the occurrence of a serious accident that is fatal to one or more employees or results in hospitalization of three or more employees, AC Corporation's Management shall report the accident to the nearest OSHA office or call the OSHA toll-free hotline (1-800-321-OSHA).

- The report shall include the name of the establishment, the location and time of the incident, the number of fatalities or hospitalized employees, the contact person, the phone number, and a brief description of the accident.

- The 8-hour reporting period begins as soon as any agent or employee of AC Corporation is informed of the accident.

A written report shall be compiled, including sketches and photographs, charts, blue prints, time sheets, JSA and appropriate references to the case.

■ **General Procedures**

- When serious injuries have occurred, Human Resources Director shall coordinate efforts with the President to notify the immediate family, discreetly as soon as possible and offer assistance.
  - A letter of concern may be sent to the injured, and the insurance carrier's representative should visit the victim and explain its services.
- Investigations by non-company personnel (federal, state, city, owner, insurance) who are legally empowered to investigate accidents/ incidents shall be permitted to do so when accompanied by a project Manager

All comments, *publicity, news release and press* releases to the public will be done through the AC Corporation Human Resource Department and or the President Office.

- The Site Superintendent shall formulate the corrective steps to be put into effect immediately, based on the complete assemblage of the facts, including any retraining plans, which may be indicated.
- All accident investigation shall be forwarded to AC Corporation Safety Director, where the data and information will be used to train employees so processes may be put in place to prevent reoccurrence of similar events.

**Equipment**

- First aid equipment shall be kept on each job site and be made available to first responders when required.
- Job forms are made available to superintendents and foremen, which included but not limited to STA (Safety Task Analysis) and Accident investigation forms.
- All other equipment used for an accident investigation is part of every AC Corporation's superintendent and foremen arsenal; i.e. pen, cellular phone camera, tape measure, etc...

## 6 TRAINING

- All AC Corporation Personnel shall be trained in their roles and responsibility as they relate to responding to an accident, accident reporting and accident investigation.
- All AC Corporation Personnel are instructed at new employee orientation and at least annually thereafter, to report all accidents and near misses, regardless of how minor they appear to be, to their foreman.
- First responder training is provided as required by the certifying agency; American Heart Association or American Red Cross.
- Accident investigation training is provided to the Superintendent and Foremen every two years.

Reported by:_____Witnesses:_____AC Employee ( ) Agency Employee ( )
Project Manager _____ OSHA ( ) First Aid ( ) Report Only ( )
Foreman: _____ Went to Dr._____/Hospital_____

**AC CORPORATION**

**FIRST REPORT OF AN ACCIDENT**

NAME OF INJURED_____
DEPT. & NO._____OCCUPATION/POSITION_____JOB NAME & NO_____
DAY & DATE OF INJURY_____TIME OF INJURY_____AM / PM
LOCATION OF ACCIDENT (City/State/County)_____
DATE REPORTED TO SUPERVISOR_____DATE DISABILITY BEGAN_____
NATURE OF INJURY (Cut, Bruise, Fall, Eye, Etc.)_____
PART OF BODY INJURED (Be Specific; Right hand, etc.)_____
SUTURES REQUIRED?_____ ANTIBIOTIC PRESCRIBED_____ MODIFIED DUTY_____
MEDICAL TREATMENT FACILITY_____
_____

DESCRIPTION OF ACCIDENT (Describe what employee was doing and how accident occurred)_____

_____

_____

_____

_____

WAS SAFETY APPLIANCE PROVIDED?_____WAS IT IN USE AT THE TIME?_____
DID UNSAFE ACT OF THE EMPLOYEE CAUSE OR CONTRIBUTE TO THE ACCIDENT? IF SO, EXPLAIN:_____
_____
WHAT ACTION HAVE YOU TAKEN OR DO YOU RECOMMEND TO PREVENT A SIMILAR ACCIDENT?_____
_____
SUPERVISOR_____DATE_____
FORM COMPLETED BY_____DATE_____

**FOR OFFICE USE ONLY**

SOCIAL SECURITY NUMBER_____DOB_____DOH _____
HOURLY WAGE_____ACTUAL AVERAGE WAGE_____
MALE ( ) FEMALE ( ) MARRIED ( ) SINGLE ( ) LEGALLY SEPARATED ( ) DIVORCED ( )
ADDRESS_____
_____
PHONE (336)_____
(N:BENEFITS/Wc/FIRSTRPT – Revised 3/02)

## INCIDENT INFORMATION

| Date of Incident | Time | Day of Week | Shift | Department |
|---|---|---|---|---|
| | | | | |

## INJURED PERSON

| | |
|---|---|
| Name: | Address: |
| Age: Phone: | |
| Job Title: | Supervisor's Name: |
| Length of Employment with AC Corp: | Length of Employment at Job Site: |
| Employee Classification: ☐ Full Time ☐ Contract | |

| Nature of Injury | | | | |
|---|---|---|---|---|
| ☐ Strain/Sprain | ☐ Bruising | ☐ Dislocation | ☐ Other (specify) | Injured Part of Body: |
| ☐ Fracture | ☐ Scratch/Abrasion | ☐ Internal | Remarks: | |
| ☐ Laceration/Cut | ☐ Amputation | ☐ Foreign Body | | |
| | ☐ Burn/Scald | ☐ Chemical Reaction | | |

| Treatment | | Name and Address of Treating Physician or Facility |
|---|---|---|
| ☐ First Aid | ☐ Out Patient Clinic | |
| ☐ Emergency Room | ☐ Hospitalization | |

## DAMAGED PROPERTY

| Property, Equipment, or Material Damaged | Describe Damage |
|---|---|
| Object or Substance Inflicting Damage: | |

Describe what happened (attach photographs or diagrams if necessary)

## ROOT CAUSE ANALYSIS (Check All That Apply)

| Unsafe Acts | | Unsafe Conditions | | Management Deficiencies | |
|---|---|---|---|---|---|
| Improper work technique | | Poor workstation design or layout | | Lack of written procedures/policies | |
| Safety rule violation | | Congested work area | | Safety rules not enforced | |
| Improper PPE or PPE not used | | Hazardous substances | | Hazards not identified | |
| Operating without authority | | Fire or explosion hazard | | PPE unavailable | |
| Failure to warn or secure | | Inadequate ventilation | | Insufficient worker training | |
| Operating at improper speeds | | Improper material storage | | Insufficient supervisor training | |
| By-passing safety devices | | Improper tool or equipment | | Improper maintenance | |
| Guards not used | | Insufficient know of job | | Inadequate supervision | |
| Improper loading or placement | | Slippery conditions | | Inadequate job planning | |
| Improper lifting | | Poor housekeeping | | Inadequate hiring practices | |
| Servicing machinery in motion | | Excessive noise | | Inadequate workplace inspection | |
| Horseplay | | Inadequate guarding of hazards | | Inadequate equipment | |
| Drug or alcohol use | | Defective tools/equipment | | Unsafe design or construction | |
| Unnecessary haste | | Insufficient lighting | | Unrealistic scheduling | |
| Unsafe act of others | | Inadequate fall protection | | Poor process design | |
| Other: | | Other: | | Other: | |

## INCIDENT ANALYSIS

Using the root cause analysis list on the previous page, explain the cause(s) if the incident in as much detail as possible.

## PREVENTION ACTIONS

| Describe actions that will be taken to prevent recurrence | | | |
|---|---|---|---|
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## INVESTIGATION TEAM

| Signature | Name | Position |
|---|---|---|
| | | |
| | | |
| | | |

# *Guide to Accident/Incident Investigations*

## Introduction

Accidents occur when hazards escape detection during preventive measures, such as a job or process safety analysis, when hazards are not obvious, or as the result of combinations of circumstances that were difficult to foresee. A thorough accident investigation may identify previously overlooked physical, environmental, or process hazards, the need for new or more extensive safety training, or unsafe work practices. The primary focus of any accident investigation should be the determination of the facts surrounding the incident and the lessons that can be learned to prevent future similar occurrences. The focus of the investigation should NEVER be to place blame. The process should be positive and thought of as an opportunity for improvement.

Most accidents in the workplace result from unsafe work behaviors. According to the latest research, they represent the direct cause for about 95% of all workplace accidents. Hazardous conditions represent the direct cause for only about 3% of workplace accidents. "Acts of God" account for the remaining 2%. All these statistics imply that management system weaknesses account for fully 98% of all workplace accidents. Effective accident investigation identifies these root causes and recommends strategies to eliminate management system weaknesses.

## When do you conduct an investigation?

As a general rule, investigations should be conducted for:

- All injuries (even the very minor ones)
- All accidents with potential for injury
- Property and/or product damage situations
- All “Near Misses” where there was potential for serious injury

Near miss and incident reporting and investigation allow you to identify and control hazards before they cause a more serious incident. Accident/incident investigations are a tool for uncovering hazards that either were missed earlier or hazards where controls were defeated. However, it is important to remember that the investigation is only useful when its objective is to identify root causes. In other words, every contributing factor to the incident must be uncovered and recommendations made to prevent recurrence.

## Have a plan!

When a serious accident occurs in the workplace, everyone will be too busy dealing with the emergency at hand to worry about putting together an investigation plan, so the best time to develop effective accident investigation procedures is before the accident occurs. The plan should include procedures that determine:

- Who should be notified of accident.
- Who is authorized to notify outside agencies (fire, police, etc.)
- Who is assigned to conduct investigations.
- Training required for accident investigators:
- Who receives and acts on investigation reports.
- Timetables for conducting hazard correction.

## Secure the accident scene

For a serious accident, the first action the accident team needs to take is to secure the accident scene so material evidence is not moved or removed. Material evidence has a tendency to walk off after an accident. If the accident is quite serious, OSHA may inspect and require that all material evidence be marked and remain at the scene of the accident.

## Gather information

The next step is to gather useful information about what directly and indirectly contributed to the accident. The following tools should be used to gather as much information as possible:

- Interview eyewitnesses as soon as possible after the accident. Interview witnesses separately, never as a group.
- Interview other interested persons such as supervisors, co-workers, etc.
- Review related records such as:
- Training records
- Disciplinary records
- Medical records (as allowed)
- Maintenance records
- OSHA 200 Log (past similar injuries)
- Safety Committee records
- Document the scene with photographs, videotape, or sketches AND appropriate measurements.

## Develop a sequence of events

Use the information gathered to develop a detailed step by step description of the accident. Make sure the accident is documented in enough detail to enable an individual unfamiliar with the situation to envision the sequence of events. Do not just describe the accident itself, include a description of events that led up to the accident.

## Analyze the accident

The next step is to determine the cause(s) of the accident. This is the most difficult step because first the events must be analyzed to discover surface cause(s) for the accident, and then, by asking "why" a number of times, the related root causes are uncovered. Remember, surface causes are usually pretty obvious and not too difficult to determine. However, it may take a great deal more time to accurately determine the weaknesses in the management system, or root causes, that contributed to the conditions and practices associated with the accident.

**More on surface causes**

The surface causes of accidents are those hazardous conditions and individual unsafe employee/manager behaviors that have directly caused or contributed in some way to the accident. Hazardous conditions may exist in any of the following categories:

- Materials
- Machinery
- Equipment
- Tools
- Chemicals
- Environment
- Workstations
- Facilities
- People
- Workload

It's important to know that most hazardous conditions in the workplace are the result of unsafe behaviors that produced them. Individual unsafe behaviors may occur at any level of the organization.

Some example of unsafe employee/manager behaviors include:

- Failing to comply with rules
- Using unsafe methods
- Taking shortcuts
- Horseplay
- Failing to report injuries
- Failing to report hazards
- Allowing unsafe behaviors
- Failing to train
- Failing to supervise
- Failing to correct
- Scheduling too much work
- Ignoring worker stress

**More on root causes**

The root causes for accidents are the underlying system weaknesses that have somehow contributed to the existence of hazardous conditions and unsafe behaviors that represent surfaces causes of accidents. Root causes always pre-exist surface causes. Inadequately designed system components have the potential to feed and nurture hazardous conditions and unsafe behaviors. If root causes are left unchecked, surface causes will flourish!

**Root causes may be separated into two categories:**

- **System design weaknesses**. Missing or inadequately designed policies, programs, plans, processes and procedures will affect conditions and practices generally throughout the workplace. Defects in system design represent hazardous system conditions.
- **System implementation weaknesses.** Failure to initiate, carry out, or accomplish safety policies, programs, plans, processes, and procedures. Defects in implementation represent ineffective management behavior.

System Design Weaknesses System Implementation Weaknesses

- Missing or inadequate safety policies/rules
- Training program not in place
- Poorly written plans
- Inadequate process
- No procedures in place
- Safety policies/rules are not being enforced.
- Safety training is not being conducted
- Adequate supervision is not conducted
- Incident/Accident analysis is inconsistent
- Lockout/tagout procedures are not reviewed annually

## Develop preventive actions

This is the most important piece of any investigation. All of the work done to this point culminates with recommendations to prevent similar accidents from happening in the future. Recommendations should relate directly to the surface and root causes for the accident.

These recommendations should include recommended actions such as:

- Engineering controls (for example, local exhaust ventilation or use of an lift assisting device)
- Work practice controls (for example, pre-plan work or remove jewelry and loose fitting clothing before operating machinery)
- Administrative controls (for example, standard operating procedures or worker rotation)
- Personal protective equipment (for example, safety glasses or respirators) it is crucial that, after making recommendations to eliminate or reduce the surface causes, that the same procedure is used to recommend actions to correct the root causes. If root causes are not corrected, it is only a matter of time before a similar accident occurs.

## Summary

A successful accident investigation determines not only what happened, but also finds how and why the accident occurred. Investigations are crucial as an effort to prevent a similar or perhaps more disastrous sequence of events. Research has shown that a typical accident is the result of many related and unrelated factors that somehow all come together at the same time. It is estimated that there are usually more than ten factors that contribute to a serious accident. Although, this combination of factors normally makes an investigation very time consuming and resource intensive, the good news is that the accident can normally be prevented by removing only a few of the contributing factors.

Attached is a typical accident/incident investigation form to assist you in determining surface and root causes as well as track progress on preventative actions. Should you have additional questions on this subject, please feel free to call the Safety Director or the Human Resource Department at (336) 273-4472.

## 1 PURPOSE AND SCOPE

### Purpose

The purpose of this program is to prevent falls and accidents associated with ladder use and ensure portable ladders comply with OSHA regulations and industry standards for safe use. It covers selection, procurement, use, and inspection of all ladder types including portable ladder types (extension, step, straight, and mobile).

### Scope

This procedure applies to all AC Corporation personnel and subcontractors working where ladders are used.

## 2 REFERENCES

- Title 29, Code of Federal Regulations, Parts 1910, *Occupational Safety and Health Administration* (OSHA), U.S. Department of Labor.
  - 29CFR 1910.24, Fixed industrial stairs
  - 29CFR 1910.25, Portable wood ladders
  - 29CFR 1910.26, Portable metal ladders
  - 29CFR 1910.27, Fixed ladders
  - 29CFR 1910.29, Manually propelled mobile ladder stands and scaffold (towers)

## 3 GENERAL

### Responsibilities

- The *Job Site Superintendent or Foreman* is responsible for implementing, enforcing and monitoring this procedure in their job site.
- The *Safety Director* is responsible for training compliance with this procedure.
- The *Employee* is responsible for working within their qualifications and following AC Corporation procedures.

### General Safety Rules

These rules apply to the use of all portable and fixed ladders:

- Complete all required ladder safety training before using a ladder to reach a height of 48 inches or higher. Only use a ladder for the purpose for which it is designed.
- Ladders shall be inspected by a competent person for visible defects on a periodic basis and after any occurrence that could affect their safe use.
- Ladder rungs, cleats, and steps shall be parallel, level, and uniformly spaced, when the ladder is in position for use
- Do not let anyone else use a ladder while you are
- Check the rating of the ladder and verify that you will not exceed its capacity (include body weight and tools)
- Always face the ladder when ascending or descending

- Always place a ladder only on a stable surface (never on a box or any unstable area)
- When used in a doorway, barricade or guard the area around the ladder
- Do not move, shift, or extend a ladder while it is occupied – never "walk" a ladder
- Do not overextend sideways. Use the belt buckle rule: keep your belt buckle positioned between the side rails
- Use both hands to climb the ladder – carry objects in a backpack or on tool belt
- Do not carry any object that may cause you to lose balance or fall
- If an object cannot be carried safely use a rope to raise or lower it
- Secure ladders during transport and store properly to avoid damage
- Do not use a metal ladder when the risk of contact with an energized conductor or circuit exists
- Do not paint wooden ladders. Limited marking or stenciling is permissible.
- Do not modify a portable ladder

**Step Ladders**

- Do not use the ladder top (cap) or the rung below it for standing or stepping
- Do not stand on rear bracing or spreaders
- Never use a step ladder that is not fully opened and be sure the spreaders are locked

**Ladder Stands**

- Ensure safety feet or non-skid material are functional and in good condition
- Ensure spring mechanisms and locking brakes are functional and in good condition
- Do not over-reach or stand on tip-toes to reach beyond the ladder; find a higher ladder
- Do not stand on hand rails (if present)

**Single and Extension Ladders**

- Remove from service single and extension ladders without safety feet
- Do not use the top section of an extension ladder as a straight ladder
- Do not tie or fasten ladders together unless specifically designed for such use
- Do not make adjustments when a user is on the ladder and stand at the base when making length adjustments
- Position ladder for a 1:4 lean ratio; that is, one foot out for every four feet of elevation

- Tie off ladders whenever possible at or near the top for added stability. Tie off at the bottom if there is difficulty in maintaining stability. When tying off or untying the top, or if the ladder cannot be tied off, someone on the ground should hold the ladder to ensure it remains stable.

**Extension ladder overlap requirements for the two sections:**

- Up to 36 feet in length, the overlap must be at least three feet
- 36 to 48 feet in length, the overlap must be at least four feet
- 48 to 60 feet in length, the overlap must be at least five feet
- Place ladders with both side rails supported unless equipped with a single support attachment
- Extend the ladder a minimum of three feet above the landing area when accessing roofs, landings, or open floor levels

**Mobile Ladder Stands**

- Only use on a level surface
- Always face the steps when ascending or descending
- Do not move the ladder when a person is using it
- Do not store material or equipment on the steps or platform
- Do not extend the height of a platform by adding an extension or object to the stand
- Do not use to access an elevated or other surface or work area

Checklist of common inspection items, can be used to report problems, does not need to be kept on file.

## 4 Definitions

**CFR** Code of Federal Regulations

- Ladder Categories
  - — Type IA-300 pounds extra heavy duty
  - — Type I-250 pounds, heavy duty
  - — Type II-225 pounds, medium duty
  - — Type III-200 pounds, light duty

**Fixed Ladder** - A ladder that can not be easily moved or carried, and may be an integral part of a structure.

## 5 Training

AC Corporation shall have each employee who performs work on a ladder trained in the subject matter to recognize the hazards associated with the type of ladder being used and to understand the procedures to control or minimize those hazards.

**AC Corporation**

# MONTHLY LADDER SAFETY
**INSPECTION CHECKLIST**

| | |
|---|---|
| **DATE / /** | **COLOR CODE** |
| **JOB NAME:** | **JOB#:** |
| **INSPECTED BY:** | **PROJECT SUPERINTENDENT:** |
| **LADDER ID#:** | **LADDER TYPE:** |

**INSTRUCTIONS:**
1) Inspect all step/extension ladders using checklist below.
2) Affix proper color code on all ladders passing inspection.
3) Tag defective ladders "Out of Service" and remove from site.
4) Note deficiencies/corrective actions in Comments section below.
5) Maintain a copy of inspection report onsite.

| | GOOD | DEFECTIVE | N/A |
|---|---|---|---|
| SIDE RAILS | | | |
| RUNGS/ STEPS | | | |
| SIDE GUIDES | | | |
| RUNG LOCKS | | | |
| SAFETY FEET | | | |
| TRUSS RODS AND BLOCKS | | | |
| ROPE/PULLY | | | |
| RIVETS/FASTENERS | | | |
| STABILITY | | | |
| CAPACITY AND SAFETY LABLES INTACT | | | |
| OVERALL CONDITION | | | |

**COMMENTS: (NOTE DEFICIENCES AND CORRECTIVE ACTIONS)**

| DEFICIENCIES | CORECTIVE ACTION (TAG, REPAIR, DISCARD) |
|---|---|
| | |
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## 1 PURPOSE AND SCOPE

### ■ Purpose

Control of Hazardous energy is the purpose of the Lockout- Tagout Program. This program establishes the requirements for isolation of both kinetic and potential electrical, chemical, thermal, hydraulic and pneumatic and gravitational energy prior to equipment repair, adjustment or removal.

### ■ Scope

This procedure applies to all AC Corporation personnel and subcontractors working on projects where equipment must be taken out of service for the performance of work activities such as installation, maintenance, repair, construction, or equipment removal. The procedure may also be used to isolate equipment of which the energization or operation may present danger to personnel or property.

Lockout/tagout is not required for electrical equipment that can be unplugged from the source and the person performing the work has control of the plug.

## 2 REFERENCES

■ Title 29, Code of Federal Regulations, Parts 1910.147, the control of hazardous energy

## 3 GENERAL

### ■ Responsibilities

- The Job Site Superintendent or Foreman is responsible for implementing, enforcing and monitoring this procedure in their job site.
- The *Safety Director* is responsible for training compliance with this procedure.
- The *Employee* is responsible for working within their qualifications and following AC Corporation procedures.

This procedure shall be applied to prevent injury or damage caused by the unexpected release of active or stored energy. Hazardous energy sources could be in the form of the following:

| | |
|---|---|
| Electrical | Mechanical |
| Hydraulic | Pneumatic |
| Chemical | Thermal |

Preplanning of work activities should include identification of all potential hazardous energy sources so that they may be properly isolated, locked, and tagged out.

Prior to initiating work activities on or around locked out/tagged out equipment, the equipment must be checked or tested by or in the presence of the person(s) performing the work activities.

The *Safety Director or designee* inspection performs an inspection of a LOTO procedure at least once a year, documenting the review of, equipment, employees, date and the inspector.

## HAZARD CONTROLS

- Only authorized and trained employees may engage in tasks that require use of lockout-tagout procedures
- All equipment has single sources of electrical power
- Lockout procedures have been developed for all equipment and processes
- Restoration from Lockout is a controlled operation

### ■ Definitions

- Authorized (Qualified) Employees are the only ones certified to lock and tagout equipment or machinery. Whether an employee is considered to be qualified will depend upon various circumstances in the workplace. It is likely for an individual to be considered "qualified" with regard to certain equipment in the workplace, but "unqualified" as to other equipment. An employee who is undergoing on-the-job training and who, in the course of such training, has demonstrated an ability to perform duties safely at his or her level of training and who is under the direct supervision of a qualified person, is considered to be "qualified" for the performance of those duties.
- Affected Employees are those employees who operate machinery or equipment upon which lockout or tagging out is required under this program. Training of these individuals will be less stringent in that it will include the purpose and use of the lockout procedures.
- Other Employees are identified as those that do not fall into the authorized, affected or qualified employee category. Essentially, it will include all other employees. These employees will be provided instruction in what the program is and not to touch any machine or equipment when they see that it has been locked or tagged out.

## 4 PROCEDURE

### Preparation for Lock and Tag Out Procedures

A Lockout - Tagout survey has been conducted to locate and identify all energy sources to verify which switches or valves supply energy to machinery and equipment. Dual or redundant controls have been removed.

A Tagout Schedule has been developed for each piece of equipment and machinery. This schedule describes the energy sources, location of disconnects, type of disconnect, special hazards and special safety procedures. The schedule will be reviewed each time to ensure employees properly lock and tag out equipment and machinery. If a Tagout Schedule does not exist for a particular piece of equipment, machinery and process, one must be developed prior to conducting a Lockout - Tagout. As repairs and/or renovations of existing electrical systems are made, standardized controls will be used.

**Routine Maintenance & Machine Adjustments**

Lock and Tag Out procedures are not required if equipment must be operating for proper adjustment. This rare exception may be used only by trained and authorized Employees when specific procedures have been developed to safely avoid hazards with proper training. All consideration shall be made to prevent the need for an employee to break the plane of a normally guarded area of the equipment by use of tools and other devices.

**Locks, Hasps and Tags**

All Qualified Maintenance Personnel will be assigned a lock with one key, hasp and tag. All locks will be keyed differently, except when a specific individual is issues a series of locks for complex lockout-tagout tasks. In some cases, more than one lock, hasp and tag are needed to completely de-energize equipment and machinery. All locks and hasps shall be uniquely identifiable to a specific employee.

**General Lock and Tag Out Procedures**

Before working on, repairing, adjusting or replacing machinery and equipment, the following procedures will be utilized to place the machinery and equipment in a neutral or zero mechanical state.

***Preparation for Shutdown***. Before authorized or affected employees turn off a machine or piece of equipment, the authorized employee will have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the means to control the energy.

Notify all affected Employees that the machinery, equipment or process will be out of service

***Machine or Equipment Shutdown.***The machine or equipment will be turned or shut down using the specific procedures for that specific machine. An orderly shutdown will be utilized to avoid any additional or increased hazards to employees as a result of equipment de-energization.

If the machinery, equipment or process is in operation, follow normal stopping procedures (depress stop button, open toggle switch, etc.).

Move switch or panel arms to "Off" or "Open" positions and close all valves or other energy isolating devices so that the energy source(s) is disconnected or isolated from the machinery or equipment.

***Machine or Equipment Isolation.***

In most industrial applications, there are isolation devices that were not designed to accommodate a locking device. In these instances, an acceptable alternative that physically obstructs or prevents the use of the isolation device shall be found. Chains shall be placed on valves or electrical panels. Wires shall be determinated, pulled back, taped, and secured.

If an isolation device does not accept a lock, a tag only is acceptable; however, all possible precautions shall be undertaken to provide a level of safety for the workers. The tag shall be readily visible to anyone attempting to operate the device.

If more than one Lockout/Tagout Permit requires that a single isolation device be locked and tagged, a lock and tag for each request shall be placed. Each lock in itself prevents the inadvertent operation of the device.

***Lockout or Tagout Device Application.***

Lockout or tagout devices will be affixed to energy isolating devices by authorized employees. Lockout devices will be affixed in a manner that will hold the energy isolating devices from the "off" position.

Where tagout devices are used they will be affixed in such a manner that will clearly state that the operation or the movement of energy isolating devices from the "off" positions is prohibited.

The tagout devices will be attached to the same point a lock would be attached. If the tag cannot be affixed at that point, the tag will be located as close as possible to the device in a position that will be immediately obvious to anyone attempting to operate the device.

Lock and tag out all energy devices by use of hasps, chains and valve covers with an assigned individual locks.

***Stored Energy***

Following the application of the lockout or tagout devices to the energy isolating devices, all potential or residual energy will be relieved, disconnected, restrained, and otherwise rendered safe.

Where the re-accumulation of stored energy to a hazardous energy level is possible, verification of isolation will be continued until the maintenance or servicing is complete.

Release stored energy (capacitors, springs, elevated members, rotating fly wheels, and hydraulic/air/gas/steam systems) must be relieved or restrained by grounding, repositioning, blocking and/or bleeding the system.

***Verification of Isolation***

Prior to starting work on machines or equipment that have been locked or tagged out, the authorized employees will verify that isolation or de-energization of the machine or equipment have been accomplished.

After assuring that no Employee will be placed in danger, test all lock and tag outs by following the normal start up procedures (depress start button, etc.).

***Extended Lockout – Tagout***

Should the shift change before the machinery or equipment can be restored to service, the lock and tag out must remain. If the task is reassigned to the next shift, those Employees must lock and tag out before the previous shift may remove their lock and tag.

**Release from LOCKOUT/TAGOUT**

Before lockout or tagout devices are removed and the energy restored to the machine or equipment, the following actions will be taken:

- The work area will be thoroughly inspected to ensure that nonessential items have been removed and that machine or equipment components are operational.
- The work are will be checked to ensure that all employees have been safely positioned or removed. Before the lockout or tagout devices are removed, the affected employees will be notified that the lockout or tagout devices are being removed.
- Each lockout or tagout device will be removed from each energy isolating device by the employee who applied the device.

**LOTO Procedures Involving More Than One Employee**

In the preceding SOPs, if more than one Employee is assigned to a task requiring a lock and tag out, each must also place his or her own lock and tag on the energy isolating device(s).

**Management's Removal of Lock and Tag Out**

Only the Employee that locks and tags out machinery, equipment or processes may remove his/her lock and tag. However, should the Employee leave the job site before removing his/her lock and tag, the Site Supervisor / Foreman may remove the lock and tag. The Site Supervisor / Foreman must be assured that all tools have been removed, all guards have been replaced and all Employees are free from any hazard before the lock and tag are removed and the machinery, equipment or process are returned to service. Notification of the employee who placed the lock is required prior to lock removal.

## 5 TRAINING

Personnel shall receive Lockout/Tagout Training as required by the OSHA Standard for Control of Hazardous Energy Sources. Retraining is required when there is a change in job assignments, in machines, a change in the energy control procedures, or a new hazard is introduced. All training and/or retraining shall be documented, signed and certified.

***Authorized Employees Training***

All Maintenance Employees, Department Supervisors and Janitorial employees will be trained to use the Lock and Tag Out Procedures. The Safety Director will conduct the training at time of initial hire. Retraining shall be held at least annually.

***Affected Employee Training***

- Only trained and authorized Employees will repair, replace or adjust machinery or equipment

- Affected Employees may not remove Locks, locking devices or tags from machinery, equipment or circuits.
- Purpose and use of the lockout procedures.

***Other Employee Training***

- Only trained and authorized Employees will repair, replace or adjust machinery or Equipment.
- Other Employees may not remove Locks, locking devices or tags from machinery, equipment or circuits

**Lockout - Tagout Audit**

**Job/Facility _____ Auditor _____ Date _____**

| Area | Satisfactory | Action Required | Action completed |
|---|---|---|---|
| **Employee Knowledge** | | | |
| Date of training | | | |
| Purpose of LOTO | | | |
| Devices Used | | | |
| Procedure Location | | | |
| Energy Control Methods | | | |
| **Programs Administration** | | | |
| Training Certificates | | | |
| Annual review of program | | | |
| Equipment Procedures | | | |
| Annual proficiency review | | | |
| List of Locks Issued | | | |
| Safeguards | | | |
| Engineering Safeguards | | | |
| Administrative Safeguards | | | |
| Training Safeguards | | | |
| Area Inspection | | | |
| Standardized Locks & Tags | | | |
| Locks issued to individuals | | | |
| Notification procedures | | | |
| LOTO procedure used | | | |
| Sufficient devices available | | | |

| | Operational Questions |
|---|---|
| | Is all machinery or equipment capable of movement, required to be de-energized or disengaged and locked-out during cleaning, servicing, adjusting or setting up operations, whenever required? |
| Where the power disconnecting means for equipment does not also disconnect the electrical control circuit: | |
| | Are the appropriate electrical enclosures identified? |
| | Is means provided to assure the control circuit can also be disconnected and locked-out? |
| | Is the locking-out of control circuits in lieu of locking-out main power disconnects prohibited? |
| | Are all equipment control valve handles provided with a means for locking-out? |
| | Does the lockout procedure require that stored energy (mechanical, hydraulic, air, etc.) be released or blocked before equipment is locked-out for repairs? |
| | Are appropriate employees provided with individually keyed personal safety locks? |
| | Are employees required to keep personal control of their key(s) while they have safety locks in use? |
| | Is it required that only the employee exposed to the hazard, place or remove the safety lock? |
| | Is it required that employees check the safety of the lockout by attempting a startup after making sure no one is exposed? |
| | Are employees instructed to always push the control circuit stop button immediately after checking the safety of the lockout? |
| | Is there a means provided to identify any or all employees who are working on locked-out equipment by their locks or accompanying tags? |
| | Are a sufficient number of accident preventive signs or tags and safety padlocks provided for any reasonably foreseeable repair emergency? |
| | When machine operations, configuration or size requires the operator to leave his or her control station to install tools or perform other operations, and that part of the machine could move if accidentally activated, is such element required to be separately locked or blocked out? |
| | In the event that equipment or lines cannot be shut down, locked-out and tagged, is a safe job procedure established and rigidly followed? |

| Notes |
|---|
| |

## 1 PURPOSE AND SCOPE

### ■ Purpose

This purpose of this hearing conservation program is to prevent occupational hearing loss and comply with the NCDOL-OSHA Standard 29 CFR 1910.95 - Occupational Noise Exposure.

### ■ Scope

This procedure applies to all AC Corporation personnel and subcontractors working on projects where Noise Exposure survey results have meet or exceeded 85 dBA Time Weighted-Average (TWA).

## 2 REFERENCES

■ Title 29, Code of Federal Regulations, Parts 1910.95, *Occupational Safety and Health Administration* (OSHA), U.S. Department of Labor.

## 3 GENERAL

Under the current OSHA Standard for Occupational Noise Exposure (29 CFR 1910.95) all workers exposed to 85 dBA Time Weighted-Average TWA are to be included in a hearing conservation program. It is important to note that for work shifts in excess of 8 hours, the 85 dBA TWA is reduced. For example, exposures in excess of 83.4 dBA for a 10-hour work shift and exposures in excess of 82.1 dBA for a 12-hour work shift necessitate inclusion in a hearing conservation program.

AC Corporation hearing conservation program includes:

- An assessment of noise exposure
- Annual audiometric tests of exposed workers
- Maintenance of noise and hearing data records
- Noise abatement and/or administrative controls
- Availability of hearing protectors
- Purchase hearing protection based on hearing protector attenuation
- Employee training and education

An ongoing noise exposure evaluation program is performed under the OSHA Standard for Occupational Noise Exposure (29 CFR 1910.95) when “information indicates that any employee’s exposure may equal or exceed an 8 hour Time-Weighted Average of 85 dBA. Monitoring is repeated whenever a change in production, process, equipment or control increases noise exposure to the extent that: 1) Additional employees may be exposed at or above the action level or 2) the attenuation provided by the hearing protectors being used by the employees may be rendered inadequate.” A complete sound survey of the manufacturing area is recommended at least every two years, but is performed annually. Employees at or above 85 dBA will be administered hearing conservation. Based on the previous test results, AC Corporation provides the following:

- Annual hearing tests
- Annual hearing conservation training
- Hearing protection
- Post The OSHA Noise Standard (29 CFR 1910.95)
- The results of the sound survey

**Responsibilities**

- The *Manufacturing Supervisors* are responsible for enforcing and monitoring this procedure in their work area.
- The *Safety Director* is responsible for training compliance with this procedure.
- The *Industrial Audiometric Technician* is responsible for audiometric test and training in compliance with this procedure
- The *Affective Employee* is responsible for following AC Corporation procedures.

## 5 PROCEDURE

**Engineering Measures To Reduce Noise**

- Annual hearing conservation training
- Hearing protection
- Contact with the manufacturer for noise abatement suggestions
- The purchase of quieter equipment or routine maintenance to reduce noise levels
- Reduction of noise level at the source
  - Substitution of materials (i.e., plastic for metal)
  - Dampening or reducing surface vibration
  - Increasing the distance between the employee and the noise source
  - Enclosures or sound insulation material
  - Relocation of job tasks which may be completed out of high noise areas

**Administrative Measures To Reduce Noise**

When engineering measures alone cannot reduce noise below 90 dBA, administrative methods will be used to minimize employee exposure such as worker rotation from high noise levels to quiet areas.

## ■ MANAGING THE HEARING CONSERVATION PROGRAM

All AC Corporation employees in the manufacturing work area who are exposed to a noise level of 85 dBA or above will be in the hearing conservation program and have their hearing checked annually by the Hearing Conservationist. Results of the hearing tests are maintained in the Audiometric Test Lab.

Within 6 months of an employee's first exposure at or above the action level, AC Corporation shall establish a valid baseline audiogram against which subsequent audiograms can be compared. Testing will then be at least annually for all employees requiring hearing test. Each employee's supervisor is notified when employee testing is due for retesting.

AC Corporation provides a file for the audiograms. These files are kept confidential and maintained accordingly.

## 6 TRAINING

Hearing Conservation Training is performed at least annually for all employees with noise exposures of 85 dBA TWA or greater. The goal of the training is to orient employees to the purpose of hearing protection, the use of hearing protection and AC Corporation policy regarding the hearing conservation program. Training shall be updated consistent to changes in PPE and work processes.

The following topics are included in the employee training of the hearing conservation program:

- The effects of noise on hearing
- The purpose of the annual hearing test and an explanation of the test procedures
- The purpose of hearing protectors, instructions on selection, the advantages, disadvantages, fitting use and care

**How To Properly Wear Hearing Protectors**

AC Corporation instructs employees at their initial fitting in how to properly don hearing protection and in the use and care of all hearing provided by AC Corporation.

Hearing protection training is provided annually or each time an employee shows a Standard Threshold Shift change in hearing. AC Corporation provides at least two types of hearing protectors.

The life of the hearing protector is dependent upon the care it is given. A sponge type hearing protector is disposable.

**Putting in Earplugs Only Involves Two Steps**

FIRST
Put your left arm over your head and with your left hand pull up on your right ear.

SECOND
With your right hand insert the ear plug. Switch hands and insert the other plug in the same manner.

Remember, both plugs must be worn for complete protection

**Recordkeeping**

Records are an important part of the hearing conservation program. The information contained in these records reflects the quality and effectiveness of AC Corporation hearing conservation program.

A number of documents are required to be maintained under the OSHA Noise Standard once the "Action Level" had been initiated. These records must be retained for specified periods as shown in the following table. These records are provided, upon request, to employees, former employees, representatives designated by the individual employee and the NCDOL OSHA Compliance Officer.

Records/Documentation is maintained as follows:

- Sound Survey (retain at least two years)
- Employee notification on the results of the sound survey
- Posted OSHA Noise Standard

- Hearing Testing (retain for at least the duration of employment)
  - Annual
  - Baseline
- Audiogram Evaluation Requirements
  - Standard Threshold Shift Requirements
  - Physician review
- Hearing Protection
- Hearing Conservation Training
- Audiometer
  - acoustic calibration check
  - exhaustive calibration check
  - biological calibration check
  - self-listening check
- Booth test
  - background noise
- Recording hearing loss on the OSHA 300 log

**Employee Notification on the Results of the Sound Survey**

Employees receive a copy of the results of the sound survey and a copy is placed in the employee's file. In addition, the results of the latest survey are discussed in hearing conservation training sessions; employee's names are withheld. The survey records are maintained for two years.

**Post OSHA Noise Standard**

The OSHA Noise Standard is posted in the manufacturing shop.

**Hearing Testing**

The two types of hearing tests are annual hearing tests and baseline hearing tests. Annual hearing testing is performed for employees with 85 dBA TWA or higher noise exposures. Baseline hearing testing is done within 6-months of an employee is initially hire date. The baseline is extremely important because it is the reference against which future audiograms are compared to determine the extent to which an employee's hearing is deteriorating. The employee wears protection for any period exceeding six months until the baseline is obtained. (North Carolina Worker's Compensation Law has a 90 working day "grace period". The baseline audiogram precedes at least 14 hours without exposure to workplace noise. The time that hearing protection is worn may be included as part of the 14 hours without exposure to noise. AC Corporation informs the employee that they need to avoid non-occupational noise exposure during the 14 hours prior the audiometric test. This notification is kept on file.

A retest audiogram is conducted to verify or confirm a hearing threshold result. Times when a retest may be needed:

- If an employee has suffered a Standard Threshold Shift, the employer may obtain a retest within 30 days and use the results of the retest as the annual audiogram.
- The Audiologist or Physician can request a retest to confirm test results.
- When problems are suspected by the test administrator (Hearing Conservationist).

AC Corporation

NOTIFICATION OF "QUIET PERIOD" PRIOR TO BASELINE HEARING TEST

It is an OSHA Noise Standard requirement that you be free from high noise exposure for 14 hours before your baseline test.

You should avoid the following types of noise prior to the hearing test:

WORKPLACE NOISE
LAWN MOWERS
LEAF BLOWERS
WEED TRIMMERS
CHAIN SAWS
POWER TOOLS
SMALL ENGINES
CAR RACES
SNOW MOBILES
SMALL AIRPLANES
POWER BOATS
ALL FIREARMS (hunting, target shooting, skeet shooting)
LOUD MUSIC (concerts, walkman or other headset radio, radio/stereos)

Please wear hearing protection until your baseline hearing test is completed to minimize noise exposure on and off the job.

I have been notified of the need to avoid occupational and non-occupational noise prior to my test.

_____ _____

Employee Signature Date

## HEARING CONSERVATION TRAINING

All AC Corporation employees with noise exposure of 85 dBA TWA or greater are included in hearing conservation training annually. Documentation of this training is maintained.

### Audiometer

The following checks are performed:

- Acoustic Calibration Check annually
- Exhaustive Calibration Check at least every two years
- Biological Calibration Check each day prior to testing
- Self-Listening Check each day prior to audiometric testing.

### Booth

- Noise levels inside the booth must is checked with the ventilation fan on and off, each time the booth location or environment changes.
- Background noise level is checked every three years.

### Recording Hearing Loss on the OSHA 300 Log

Hearing loss and/or tinnitus are recorded on the Occupational Illness or Injury form; on the illness side under repeated trauma. Logged on the 300 Log within 6 days a Standard Threshold Shift of 25 dBA. A cumulative means that if an employee suffers a 10 dBA shift this year and a 15 dBA next year, the STS of 25 dBA would be listed on next year's OSHA 300 log.

### Standard Threshold Shift

A Standard Threshold Shift is a change in hearing threshold relative to the baseline audiogram of an average of 10 or more dBA at 2000, 3000, and 4000 Hz. When a Standard Threshold Shift has occurred, the employee shall be informed in writing within 21 days of the determination. Employees will be trained in using hearing protectors, and in care of the hearing protectors. If the employee is already using hearing protectors, they will have to be retrained and refitted.

## STANDARD THRESHOLD SHIFT NOTIFICATION

I have been notified of a Standard Threshold Shift on my last annual hearing test. As a result of my Standard Threshold Shift, I was fitted/refitted with _____ hearing protectors and received instructions in the proper way to wear and care for this protector. I understand that the use of this hearing protection is mandatory.

Signature _____ Date _____

_____

AC Corporation Representative

I have been through the Hearing Conservation Training Program at AC Corporation and I understand that wearing hearing protectors is mandatory in the Manufacturing Shop. I work in the Manufacturing Shop, therefore I am required to wear hearing protection while in my work area. I have received my hearing protectors and realize that additional hearing protectors are available in the Manufacturing Shop entrance or from the Safety Director at no cost to the employee. The following topics were included in training:

- The effects of noise on hearing.
- The purpose of the annual hearing test.
- The purpose of wearing protectors and types of hearing protectors available as well as their proper fit and care.

Employee Signature _____ Date _____

## 1 PURPOSE AND SCOPE

- **Purpose**

  This procedure provides the requirements for the selection and use of personal protective equipment (PPE) to provide employees with eye, face, head, arm, hand, body, foot, and ear protection. Respiratory protection and fall protection are separate procedures.

- **Scope**

  This procedure applies to all AC Corporation personnel and subcontractors working on projects or in offices where PPE requirements are applicable.

## 2 REFERENCES

- Title 29, Code of Federal Regulations, Parts 1910 and 1926, *Occupational Safety and Health Administration* (OSHA), U.S. Department of Labor.
- Title 29, Code of Federal Regulations, Parts 1910 and 1926, *Occupational Safety and Health Administration* (OSHA), U.S. Department of Labor.
- American National Standards Institute (ANSI) Z87.1-1989, *Practice for Occupational and Educational Eye and Face Protection.*
- American National Standards Institute (ANSI) Z89.1-1986, *Protective Headware for Industrial Workers*.
- American National Standards Institute (ANSI) Z41, 1991, *Personal Protection-Protective Footwear*.

## 3 GENERAL

The safety and well being of all employees shall receive first consideration throughout all phases of work. PPE shall be easily obtainable by employees. It is the responsibility of every employee to use appropriate PPE to ensure accident-free work.

PPE shall not be used as a substitute for engineering, work practice, and/or administrative controls. PPE shall be used in conjunction with these controls to ensure employee safety and health among all AC Corporation operations. PPE includes all clothing or other work accessories designed to create a barrier against work place hazards. Employees must be made aware that PPE does not eliminate the hazard. If PPE fails, exposure will occur.

- **Definitions**

  None

  **Responsibilities**

  - The Job Site Superintendent or Foreman is responsible for implementing, enforcing and monitoring this procedure in their job site.
  - The *Safety Director* is responsible for training compliance with this procedure.
  - The Employee is responsible for working within their qualifications and following AC Corporation procedures.

## 4 PROCEDURE

### ■ General Requirements

- Protective equipment, including PPE for eyes, face, head, and extremities, protective clothing, and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact.
- AC Corporation shall furnish required Personal Protective Equipment.
- Subcontractors are required to furnish their employees with all required PPE.
- All PPE shall be of safe design and construction for the work to be performed.
- Defective and damaged PPE shall not be used.
- PPE shall not be used for any purpose other than employee protection.

### ■ Hazard Assessment

- AC Corporation shall assess each workplace to determine if hazards are present, or are likely to be present, which would necessitate the use of PPE. If such hazards are present, or likely to be present, AC Corporation shall:
  - Select, and have each affected employee use, the types of PPE that will protect the affected employee from the hazards identified in the hazard assessment.
  - Communicate selection decisions to each affected employee.
  - Select PPE that properly fits each affected employee.
- AC Corporation shall verify workplace hazard assessments have been performed through a written certification. The certification shall identify the workplace evaluated; the person certifying the evaluation; and the date(s) of the hazard assessment.

## 5 TRAINING

- AC Corporation shall provide training to each employee who is required, by this procedure, to use PPE. Each employee shall be trained to know at least the following:
  - When PPE is necessary
  - What PPE is necessary
  - How to properly don, doff, adjust, and wear PPE
  - The limitations of the PPE
  - The proper care, maintenance, useful life and disposal of the PPE

- Each affected employee shall demonstrate an understanding of the training and the ability to use PPE properly, before being allowed to perform work requiring the use of PPE.
- When there is reason to believe that any affected employee who has already been trained does not have the understanding and skill required, the employee shall be retrained. Circumstances where retraining is required include, but are not limited to, the following:
  - Changes in the workplace which renders previous training obsolete
  - Changes in the type of PPE to be used which renders previous training obsolete
  - Inadequacies in an affected employee's knowledge or use of assigned PPE
- AC Corporation shall verify that each affected employee has received and understood the required training through a written certification that contains the name of each employee trained, the date(s) of training, and that identifies the subject of the certification. The training documentation for each employee shall be retained at the employee's work location for the duration of employment and made a part of the employee's permanent personnel file.

## Eye and Face Protection

- Employees shall use appropriate eye or face protection when exposed to eye or face hazards for flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation.
- Employees shall use eye protection that provides side protection when there is a hazard from flying objects. Detachable side protection (e.g., clip-on or slide-on side shields): meeting the pertinent requirements of this procedure are acceptable.

  Note**:** All AC Corporation and contractor employees, who are assigned to field projects or perform field related work activities, shall be provided with and required to wear basic eye protection (safety glasses with side shields) at all times while performing field tasks.
- Employees who wear prescription lenses while engaged in operations that involve eye hazards shall wear eye protection that incorporates the prescription in its design, or shall wear eye protection that can be worn over the prescription lenses without disturbing the proper position of the prescription lenses or the protective lenses. AC Corporation will provide employees who wear prescription eyeglasses, prescription safety glasses once every two years or safety glasses, which fit over the employee's prescription glasses.
- Eye and face PPE shall be distinctly marked to facilitate identification of the manufacturer.
- Employees shall use equipment with filter lenses that have a shade number appropriate for the work being performed for protection from injurious light radiation.

- Safety glasses that meet ANSI Z-87.1 requirements must be worn at all times when on AC Corporation projects. Safety glasses must have rigid side shields. Safety glasses need not be worn in administrative areas.
- Protective eye and face devices shall comply with ANSI Z87.1-1989, American National Standard Practice for Occupational and Educational Eye and Face Protection.

## Head Protection

- Employees shall wear protective helmets (hard hats) when working in areas where there is a potential for injury to the head from falling objects and when working near exposed electrical conductors which could contact the head.

  **Note:** All AC Corporation and contractor employees, who are assigned to field projects or perform field related work activities, shall be provided with and required to wear Class B head protection at all times while performing field tasks. The need for additional PPE will be addressed through hazard assessments and site safety and health plans.

  Hard hats (not bump caps) are required, and must conform to ANSI Z-89.1, Class B. Hard hats are required to be worn with the bill forward (except for welders wearing hoods) on all AC Corporation projects.

- Hard hats are grouped into three classes (A, B, and C) and two types (1 and 2) according to how they meet various criteria for protection from impact, penetration, electrical conductivity, flammability and other safety hazards.
  - Class A hard hats are intended to protect the head from the force of impact of falling objects and from electrical shock during contact with exposed low voltage conductors.
  - Class B hard hats are intended to protect the head from the force of impact of falling objects and from electrical shock during contact with exposed high voltage conductors.
  - Class C hard hats are intended to protect the head from the force of impact of falling objects.
  - Type 1 hard hats have a full brim.
  - Type 2 hard hats have no brim but may include a peak.
- Supplementary hard hat equipment includes winter liners, sweat bands, chin straps, and cloth caps.
- When using a face shield, welding hood or sandblasting hood, the type which combines with a hard hat shall be used.
- Hard hats shall not be modified.
- Hard hats shall be adjusted to fit properly and be worn correctly, bill to the front (unless welding). The hat shall be squared of straight and not cocked at an angle or

perched on the back of the head. If worn correctly, the hard hat protects in the following ways:

- The hard hat shell is the basic impact protection against falling and flying objects and bumping into objects.
- The curved shell allows an object to ricochet or slide off, reducing the force of impact.
- The space maintained between the shell and the head (minimum of 1 1/4 in.) above the suspension, minimizes the shock and prevents the shell from striking the head solidly upon impact.
- The space between the suspension and the shell (sufficient for ventilation), on the side of the hat, softens the effect of lateral blows.
- The peak and brim protect the face and the outwardly curved bottom edge affords protection to the ears and the nape of the neck.

- Hair shall be protected against being caught in moving machinery, subjected to sparks or snagging on objects. Long hair shall be protected by compacting it into the hard hat shell or by use of a hair net or ties so that it is not loose.
- Hard hats shall comply with ANSI Z89.1-1986, American National Standard for Personnel Protection - Protective Headwear for Industrial Workers-Requirements.

## Foot Protection

- Employees shall wear protective footwear (safety shoes) when working in areas where there is a danger of foot injuries due to falling or rolling objects, or objects piercing the sole, and where such employee's feet are exposed to electrical hazards. There are five main types of protective footwear, each focusing on a specific type of hazard:
  - Metatarsal footwear.
  - Conductive footwear.
  - Electrical hazard footwear.
  - Sole puncture resistant footwear.
  - Static dissipative footwear.

  Note: All AC Corporation and contractor employees, who are assigned to field projects or perform field related work activities, shall be required to wear, at minimum, a sturdy work shoe or boot at all times. Hard soled, heavy leather, safety toed shoes or boots (ANSI Z-41 approved) are required to be worn while working on all AC Corporation projects. Such footwear is not required in administrative areas for clerical type employees. Tennis shoes or athletic style safety shoes are not permitted. The need for more stringent footwear and/or additional PPE will be addressed through hazard assessments and site safety and health plans.

- Sneakers, tennis shoes, loafers, walking shoes, athletic or other soft leather type shoes are not acceptable footwear for field activities.
- Protective footwear shall comply with ANSI Z41-1991, American National Standard for Personal Protection - Protective Footwear.

■ **Arm and Hand Protection**

- AC Corporation shall select and require employees to use appropriate arm and hand protection (gloves) when employees' arms and hands are exposed to hazards such as those from skin absorption of harmful substances, severe cuts or lacerations, severe abrasions, punctures, chemical burns, thermal burns, and harmful temperature extremes.
- The selection of appropriate arm and hand protection shall be based on an evaluation of the performance characteristics of the arm and hand protection relative to the task(s) to be performed, conditions present, duration of use and hazards and potential hazards identified.
- All AC Corporation employees, in construction areas, shall have appropriate gloves on their person at all time.
- Specific requirements for Arm and Hand protection will be addressed through the PPE hazard assessment and site safety and health plan.

■ **Ear Protection**

- Ear protection devices shall be worn by employees working in an area where the sound level is 85 dBA or greater as reflected in the "A" scale of a noise dosimeter (sound level analyzer).
- High noise level areas (areas with noise levels at or above 85 dBA) shall be posted to warn employees, and pertinent instructions shall be given to those who are required to work in or around such areas.
- A Threshold Limit Value (TLV) for exposure to continuous noise levels has been established by the American Conference of Industrial Hygienists. It takes into consideration the time weighted average of exposure at various sound levels as follows:

| **Duration (hrs/day)** | **Sound Level (DBA)** |
|---|---|
| 8 | 85 |
| 4 | 90 |
| 2 | 95 |
| 1 | 100 |
| 1/2 | 105 |
| 1/4 | 110 |
| 1/8 | 115 |

(max. permitted)

- Exposure to impulse or impact noise shall not exceed the limits listed as follows:

| Sound Level (dBA) | Permitted Number of Impulses or Impacts Per Day |
|---|---|
| 140 | 100 |
| 130 | 1,000 |
| 120 | 10,000 |

No exposure in excess of 140 decibels peak sound pressure level is permitted.

Note**:** Impulse or impact noise is considered to be those variations in noise levels that involve maximum at intervals of greater than one per second. When the intervals are less than one second, it should be considered continuous.

- In all cases when the levels listed above are exceeded, a continuing effective hearing conservation program shall be administered and enforced. Three methods to reduce exposure to noise hazards are as follows:

  — Noise reduction shall be accomplished by the use of mufflers, insulated sound enclosures, laminated vibration softeners in machinery mounts, sound reducing panels, walls and ceilings of sound absorbing material, shutting off of machinery, and separation of noise sources to prevent accumulation of background noise levels.

  — Exposure reduction can be accomplished by alternating personnel or removing employees from the exposure until the noise source is reduced.

  — Personnel protection shall be provided in the form of ear plugs or ear muffs.

## ■ Protective Clothing

- The personal work clothes of employees shall fit their work assignments and be in adequate condition.
- Many hazards can threaten the torso; heat, splashes from hot metals and liquids, impacts, cuts, acids, and radiation. A variety of protective clothing is available; vest, jackets, aprons, coveralls, and full body suits.
- A full short-sleeve "T" shirt is considered to be minimum protection, for the torso, in warm or hot environments. (Minimum of 4’’ sleeves)
- Anyone performing “HOT WORK” activities shall have a shirt with a buttoned up collar and long sleeves, with shirts tucked into pants (except while performing welding operations) and pants without cuffs, worn on the outside of boots (Not tucked into boots).
- Long pants shall be worn by all field employees to prevent sunburn, rashes, abrasions, and insect bites and to afford some protection against flying particles and accidental spills.

- Fluorescent vests, belts, or gloves shall be worn when directing traffic and for crane and equipment signaling.
- When there is occupational exposure to bloodborne pathogens, appropriate PPE such as, but not limited to, gloves, face shields or masks and eye protection, and mouthpieces, resuscitation bags, pocket masks, or other ventilation devices shall be provided. PPE shall be considered appropriate only if it does not permit blood or other potentially infectious materials to pass through to or reach the employees work clothes, street clothes, undergarments, skin, eyes, mouth, or other mucous membranes under normal conditions of use and for the duration of time which the protective equipment will be used.

  Note: Specific requirements for protective clothing will be addressed through the hazard assessment (Job Safety Analysis) and site safety plan.

# Job Safety Analysis Form

| | | | | |
|---|---|---|---|---|
| | Task _____<br>Effective Date _____ # of Pages ____ of ____<br>Department _____ | | | |
| Prepared By:<br>Date: | Reviewed By:<br>Date: | | Approved By:<br>Date: | |
| **1. Equipment Operated** | | | | |
| **2. Environmental Conditions**<br>Inside Outside Cold Heat Wet Dust Vapors/Mist<br>Noise Vibration Other _____ | | | | |
| **3. Primary Job Functions & Position**<br>Lifting Grasping Pushing Sitting Reaching Bending<br>Kneeling Standing Pulling Squatting Other _____ | | | | |
| **4. Physical Demands** | Continuously (C) 67-100% Occasionally (O) 1-33%<br>Frequently (F) 34-66% Not Applicable (N) 0% | | | |
| Standing ____ Walking ____ Sitting ____ Pushing ____ | | | | |
| Pulling ____ Climbing ____ Stooping ____ Bending ____ | | | | |
| Kneeling ____ Reaching ____ Carrying (_____ lbs. _____ distance) | | | | |
| **5. Potential Hazards** | **Controlled By** | | | |
| Impact | PPE | Procedure | Training | Guards |
| Chemical Contact | PPE | Procedure | Training | Guards |
| Caught on or between | PPE | Procedure | Training | Guards |
| Fall or Slip | PPE | Procedure | Training | Guards |
| Over Exertion | PPE | Procedure | Training | Guards |
| Cumulative Trauma | PPE | Procedure | Training | Guards |
| Other | PPE | Procedure | Training | Guards |
| **6. List of Specific Hazards** | | | | |
| **7. Chemical List** | | | | |
| **8. PPE** | Eye | | Face | |
| Eye | Face | | Head | |
| Clothing | Hand | | Other | |
| Foot | Respiratory | | Other | |
| **9. Procedure - step by step** | | | | |

## 1 PURPOSE AND SCOPE

### Purpose

This procedure outlines the requirements for appropriate selection and use of respiratory protection equipment when it is not feasible to implement engineering controls to adequately prevent harmful exposure to employees who are working in areas that require respiratory protection.

### Scope

This procedure applies to all AC Corporation employees and subcontractors working on field projects or in area where respiratory protection is required.

## 2 REFERENCES

- Title 29, Code of Federal Regulations, Parts 1910 and 1926, *Occupational Safety and Health Administration* (OSHA), U.S. Department of Labor.
- American National Standards Institute (ANSI) Z88.2-1992, Practices for Respiratory Protection.
- American National Standards Institute (ANSI), Z88.6-1984, Physical Qualifications for Respirator Use.
- American Conference of Governmental Industrial Hygienists, Threshold Limit Values and Biological Exposure Indices, Current Edition.
- Compressed Gas Association, Commodity Specification G-7.1-1973.
- Department of Health and Human Services, NIOSH Guide to Industrial Respiratory *Protection,* Publication Number 87-116.

## 3 GENERAL

In the control of those occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors, the primary objective shall be to prevent atmospheric contamination. This shall be accomplished as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general or local ventilation, and substitution of less toxic materials). When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used pursuant to this procedure.
Respirators shall be provided when such equipment is necessary to protect the health of the employee. Respirators, which are applicable and suitable for the purpose intended, shall be provided. AC Corporation shall be responsible for the establishment and maintenance of a respiratory protection program that includes the requirements of this procedure.

Each site supervisor / foreman shall ensure that employees are provided a safe and healthful working atmosphere, free of hazards that could adversely affect their personal health and safety.

It is the policy of AC Corporation to use the most up-to-date and efficient respiratory protective equipment available and the most effective work methods to eliminate or minimize atmospheric hazards. The latter shall be accomplished by accepted

engineering control measures. When effective engineering controls are not feasible, appropriate respirators shall be used according to this procedure.

## Definitions

- *Air Purifying Respirator (APR)* - A respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.
- *Atmosphere Supplying Respirator* - A respirator which provides a clean breathable atmosphere that is independent of the surrounding environment. They are designed for use in uncharacterized environments or where contaminant concentrations are too high for APRs. This classification includes supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units.
- *Canister or Cartridge* - A container with a filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air, passed through the container.
- *Demand Respirator* - An atmosphere-supplying respirator that admits breathing air to the facepiece only when a negative pressure is created inside the facepiece by inhalation.
- *Emergency Situation* - Any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may, or does result in an uncontrolled release of an airborne contaminant.
- *Employee Exposure* - Exposure to a concentration of an airborne contaminant that would occur if the employee were not using respiratory protection.
- *End-of-Service-Life-Indicator (ESLI)* - A system that warns the respirator user of the approach to the end of adequate protection. The sorbent is approaching saturation, or is no longer effective.
- *Escape-only Respirator* - A respirator intended to be used only for emergency exit.
- *Filter of Air Purifying Element* - A component used in respirators to remove solid or liquid aerosols from the inspired air.
- *Filtering Facepiece (Dust Mask)* - A negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium.
- *Fit Factor* - A quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.
- *Fit-Test* - The use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual.
- *High Efficiency Particulate Air Filter (HEPA)* - A filter that is at least 99.97% efficient in removing monodisperse particles of 0.3 micrometers in diameter.

- *Helmet* - a rigid respirator inlet covering that also provides head protection against impact and penetration.
- *Hood* -A respiratory inlet covering that completely covers the head and neck and may also cover portions of the shoulders and torso.
- *Immediately dangerous to life and health (IDLH)* - An atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.
- *Loose-Fitting Facepiece* - A respiratory inlet covering that is designed to form a partial seal with the face.
- *Negative Pressure Respirator (tight fitting*) - A respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator.
- *Oxygen Deficient Atmosphere* - Atmosphere with an oxygen content is below 19.5 % by volume.
- *Physician or Licensed Health Care Professional (PLHCP)* - An individual whose legally permitted scope of practice (i.e. license, registration, or certification) allows him/her to independently provide, or be delegated the responsibility to provide, some or all of the health care services required in this procedure.
- *Positive Pressure Respirator* - A respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.
- *Powered Air-Purifying Respirator (PAPR)* - An air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.
- *Pressure Demand Respirator* - A positive pressure atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the facepiece by inhalation.
- *Qualitative Fit Test (QLFT)* - A pass/fail test to assess the adequacy of respirator fit that relies on the individual’s response to the test agent.
- *Quantitative Fit Test (QNFT)* - An assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.
- *Respiratory Inlet Covering* - That portion of a respirator that forms the protective barrier between the user’s respiratory tract and an air-purifying device or breathing air source, or both. It may be a facepiece, helmet, hood, suit, or a mouthpiece respirator with nose clamp.
- *Self-Contained Breathing Apparatus* - An atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.
- *Service Life* - The period of time for which a respirator, filter or sorbent, or other respiratory equipment provide adequate protection to the wearer.

- *Supplied-air Respirator (SAR) or Airline Respirator* - An atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.
- *Tight-Fitting Facepiece* - A respiratory inlet covering that forms a complete seal with the face.
- *User Seal Check* - An action conducted by the respirator user to determine if the respirator is properly seated to the face.

■ **Responsibilities**

- The Site *Supervisor* / *Foreman* is responsible for implementing and enforcing this procedure and the site respiratory protection program.
- The *Safety Director* is responsible for monitoring compliance with this procedure. The Safety Director is the Respiratory Protection Program Administrator and must be knowledgeable of the complexity of the program, and conduct evaluations.
- The *Employee*, whose tasks require the use of respiratory equipment, is responsible to use the appropriate type of respiratory equipment.
- The *Subcontractor* is responsible for providing AC Corporation a written respiratory protection program which, at a minimum, shall meet the requirements of the AC Corporation program. The subcontractor shall also provide evidence of current respiratory training, medical evaluation, and qualitative or quantitative fit testing for those employees required to use respiratory equipment

## 4 PROCEDURE

■ **Respiratory Protection Program**

- In any workplace where respirators are necessary to protect the health of the employee, a written respiratory protection program with workplace-specific procedures shall be established. The program shall be updated as necessary to reflect those changes in workplace conditions that affect respirator use. The following element shall be included in the written program:
  - — Procedures for selecting respirators for use in the workplace.
  - — Medical evaluations of employees required to use respirators.
  - — Fit testing procedures for tight-fitting respirators.
  - — Procedures for proper use of respirators in routine and reasonably foreseeable emergency situations.
  - — Procedures and schedules for cleaning, disinfecting, storing, inspection, repairing, discarding, and otherwise maintaining respirators.
  - — Procedures to ensure adequate air quality, quantity, and flow of breathing air for atmosphere-supplying respirators.

- Training of employees in the respiratory hazards to which they are potentially exposed during routine.
- Training of employees in the proper use of respirators, including putting on and removing them, any limitations on their use, and their maintenance.
- Procedures for regularly evaluating the effectiveness of the program.

- The voluntary use of respiratory equipment where not required is **prohibited** without written authorization from AC Corporation's Safety Director.
- The use of employee owned respirators is **prohibited**.
- The use of dust mask is **prohibited** without written authorization from AC Corporation's Safety Department.
- All required respirator, training and medical evaluation shall be provided at no cost to the employee.

## Selection of Respirators

- Selection of appropriate respirators shall be based on the respiratory hazard(s) to which the employee is exposed and workplace and user factors that affect respirator performance and reliability.
- A NIOSH-certified respirator must be selected. The respirator shall be used in compliance with the conditions of its certification.
- Respirators shall be selected from a sufficient number of respirator models and sizes so that the respirator is acceptable to and correctly fits the user.
- The following respirators shall be provided for employee use in IDLH atmospheres:
  - certified by NIOSH for a minimum service life of thirty minutes, or
  - A combination full facepiece pressure demand supplied-air respirator (SAR) with auxiliary self-contained air supply.
- Respirators provided only for escape from IDLH atmospheres shall be NIOSH-certified for escape from the atmosphere in which they will be used.
- All oxygen-deficient atmospheres shall be considered IDLH.
- For atmospheres that are not IDLH, a respirator shall be provided that is adequate to protect the health of the employee and ensure compliance with all other statutory and regulatory requirements, under routine and reasonably foreseeable emergency situations.
- The respirator selected shall be appropriate for the chemical state and physical form of the contaminant.
- For protection against gases and vapors,
  - An atmosphere-supplying respirator, or
  - An air-purifying respirator shall be provided.

- If an air-purifying respirators is used it should be equipped with an end-of-service-life indicator (ESLI) certified by NIOSH for the contaminant.

## Medical Evaluation

- Medical evaluations associated with the use of respiratory protection equipment shall be coordinate by AC Corporation's Safety Director or the Human Resource Department.
- A medical evaluation, to determine the employee's ability to use a respirator before the employee is fit tested or required to use the respirator in the workplace, shall be provided.
- A physician or other licensed health care professional (PLHCP) shall be identified to perform medical evaluations using a medical questionnaire or an initial medical examination that obtains the same information as the medical questionnaire.
- The medical questionnaire and evaluation shall be administered confidentially during the employee's normal working hours or at a time and place convenient to the employee. The medical questionnaire shall be administered in a manner that ensures the employee understands the content.
- The employee shall be given the opportunity to discuss the medical questionnaire and evaluation results with the PLHCP.
- The following information must be provided to the PLHCP before the PLHCP makes a recommendation concerning an employee's ability to use a respirator:
  - The type and weight of the respirator to be used by the employee;
  - The duration and frequency of respirator use (including use for rescue and escape);
  - The expected physical work effort;
  - Additional protective clothing and equipment to be worn; and
  - Temperature and humidity extremes that may be encountered.
- A copy of the workplace written respiratory program and a copy of the respiratory standard shall be provided to the PLHCP.
- A written recommendation regarding the employee's ability to use the respirator shall be obtained from the PLHCP. The recommendation shall provide only the following information:
  - Any limitations on respirator use related to the medical condition of the employee, or relating to the workplace conditions in which the respirator will be used, including whether or not the employee is medically able to use he respirator;
  - The need, if any, for follow-up medical evaluations; and
  - A statement that the PLHCP has provided the employee with a copy of the PLHCP's written recommendation.

- If the respirator is a negative pressure respirator and the PLHCP finds a medical condition that may place the employee's health at increased risk if the respirator is used, a PAPR shall be provided if the PLHCP's medical evaluation finds that the employee can use such a respirator. If a subsequent medical evaluation finds the employee is medically able to use a negative pressure respirator, then there is no longer a requirement d to provide a PAPR.
- Additional medical evaluations shall be provided whenever there is any indication that a reevaluation is appropriate. At a minimum, this would occur:
  - If an employee reports any signs or symptoms that are related to the ability to use a respirator;
  - If the PLHCP, program administrator, or supervisor determines that a reevaluation is necessary;
  - If information from the respiratory protection program indicates a need for reevaluation; or
  - If a change in workplace conditions could affect the physiological burden placed on the employee.

■ **Fit Testing**

- Before an employee is required to use any respirator with a negative or positive pressure tight-fitting facepiece, the employee must be fit tested with the same make, model, style and size of respirator that will be used.
- If an employee is allowed to voluntarily use a respirator, it is AC Corporation's policy that a fit test shall be conducted.
- All employees who are required to use a tight-fitting respirator must pass an appropriate qualitative fit test (QLFT) or quantitative fit test (QNFT).
- QLFT may only be used to fit test negative pressure air-purifying respirators that must achieve a fit factor of 100 or less.
- QLFT involves the introduction of a gas, vapor, or aerosol test agent into an area around the health of the respirator user. If the respirator user can detect the presence of the test agent through subjective means, such as odor, taste, or irritation, the respirator fit is inadequate.
- In a QNFT, the adequacy of respirator fit is assessed by measuring the amount of leakage into the respirator, either by generating a test aerosol as test atmosphere, using ambient aerosol as the test agent, or using controlled negative pressure to measure the volumetric leak rate. Appropriate instrumentation is required to quantify respirator fit in QNFT.
- Appropriate fit tests shall be performed as follows:
  - Prior to initial use of the respirator;
  - Whenever a different respirator facepiece (size, style, model or make) is used;

- Whenever an employee reports physical condition changes that could affect respirator fit;
- Whenever the employee is observed to have undergone physical changes that could affect respirator fit; and
- At least annually.

## RESPIRATOR USE

- Procedures for the proper use of respirators shall be established and implemented. Such procedures must include:
  - Prohibiting conditions that may result in facepiece seal leakage;
  - Actions to ensure continued effective respirator operation;
  - Preventing employees from removing respirators in hazardous environments; and
  - Use of respirators in IDLH atmospheres.
  - Respirators with tight-fitting facepieces shall not be worn by employees who have:
  - Facial hair that comes between the sealing surface of the facepiece and the face, or that interferes with value function; or
  - Any condition that interferes with the face-to-facepiece seal or with value function.
  - If an employee wears corrective glasses or goggles or other personal protective, it must be ensured that the equipment is worn in a manner that does not interfere with the seal of the facepiece to the face of the user.
- A user seal check must be performed each time an employee puts on a tight-fitting respirator.
- Appropriate awareness of workplace conditions and degree of employee exposure or stress must be maintained. When there is a change in work conditions or degree of employee exposure or stress that may affect respirator effectiveness, a reevaluation of the respirator's continued effectiveness must be performed.
- If an employee detects vapor or gas breakthrough, changes in breathing resistance, or leakage of the facepiece, the respirator that is not functioning properly must be replaced, repaired, or discarded before the employee can return to the work area.
- Employees must leave the respirator use area under the following conditions:
  - To wash their faces and respirator facepieces as necessary to prevent eye or skin irritation, and to reduce the amount of contamination;
  - If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the facepiece; or
  - To replace the respirator or the filter, cartridge, or canister elements.

- When employees are working in IDLH atmospheres, you must ensure:
  - — One employee or, when needed, more than one employee is located outside the IDLH atmosphere;
  - — Visual, voice, or signal line communication is maintained between the employee(s) in the IDLH atmosphere and the employee(s) located outside the IDLH atmosphere;
  - — Employee(s) located outside the IDLH atmosphere make appropriate notification prior to entering the IDLH atmosphere to provide emergency rescue;
  - — Authorized personnel provide assistance necessary to an emergency situation; and
  - — Employee(s) located outside the IDLH atmospheres are equipped with pressure demand or other positive pressure SCBAs or a pressure demand or other positive pressure supplied-air respirator with auxiliary SCBA. Also required is either appropriate retrieval equipment for removing the employee(s) who enters these hazardous atmospheres where retrieval equipment would contribute to the rescue and would not increase the overall risk resulting from entry or equivalent means for rescue where retrieval equipment is not required.

■ **Respirator Maintenance and Care**

- Each respirator wearer must be provided with a respirator that is clean, sanitary, and in good working order.
- Respirators are required to be provided in a clean and sanitary manner using procedures in OSHA 29 CFR 1910.134 or equally effective manufacturer's procedures.
- Respirators issued for the exclusive use of an employee shall be cleaned and disinfected as often as necessary to be maintained in a sanitary condition.
- Respirators issued to more than one employee shall be cleaned and disinfected after each use.
- Respirators maintained for emergency use shall be cleaned and disinfected after each use.
- Respirators used in fit testing and training shall be cleaned and disinfected after each use.
- All respirators must be stored so they are protected from damage, contamination, harmful environmental conditions and damaging chemicals, and deformation of the facepiece and exhalation valve.
- In addition to the above storage requirements, emergency use respirators must be:
  - — Kept accessible to the work area;

- Stored in compartments or covers that are clearly marked as containing emergency respirators; and
- Stored in accordance with any applicable manufacturer's instructions.

- Respirators for use in non-emergency situations must be inspected before each use and during cleaning.
- Emergency escape-only respirators shall be inspected before being carried into the workplace for use.
- The inspection will include a check of the respirator function, tightness of connections, and the condition of the various parts including but not limited to, the facepiece, head straps, valves, connecting tube, and cartridges, canister or filters; and a check of the elasto-meric parts for pliability and signs of deterioration.
- SCBAs must be inspected monthly. Cylinders shall be maintained in a fully charged state and shall be recharged when the pressure falls below 90% of the manufacturer's recommended pressure level.
  - Respirators that fail inspection, or are otherwise defective, are to be removed from service and discarded.

■ **Breathing air, quality and use**

Breathing air for atmosphere-supplying respirators must be of high purity, meet quality levels for content, and not exceed certain contaminant levels and moisture requirements. Current regulations set performance standards for the operation and maintenance of breathing air compressors and cylinders, establishes methods for ensuring breathing air quality, and sets requirements for the quality of purchased breathing air.

- Air must be Grade D or better. Oxygen is not used in compressed air units, cylinders shall meet DOT requirements, Compressors shall be located in a "clean" atmosphere, with in-line purification and tagged to indicate date or changeout. Carbon monoxide monitor shall be in place & set to alarm at 10 PPM or monitored frequently. Fittings are incompatible for non-respirable gases and containers.
- Breathing air must be of Grade D and requires certification from supplier.

■ **Identification of Filters, Cartridges, and Canisters**

All filters, cartridges, and canisters used in the workplace shall be labeled and color-coded with the NIOSH approval label. The label must remain legible and affixed to the cartridge, filter, or canister while in service.

## 5 RESPIRATOR TRAINING

- Effective training must be provided to all employees who are required to wear respirators. Employees must be trained sufficiently to:
  - Show a knowledge of why the respirator is necessary;
  - How improper fit, usage, or maintenance can compromise the protective effect of the respirator;

- Know the limitations and capabilities of the selected respirator;
- Deal with emergency situations involving the use of respirators or with respirator malfunction;
- Inspect, don, remove, and check the respirator seal;
- Understand procedures for respirator maintenance and storage;
- Know the medical symptoms and signs that may limit or prevent the effective use of respirators; and
- Understand the general requirements of the regulatory requirements.

- Training must be understandable and be given to an employee prior to using a respirator, and annually thereafter. Additionally, if there is reason to believe that any employee who has already been trained does not have sufficient understanding and skill to use the respirator, the employee must be retrained in those areas in which his or her knowledge or skill is deficient. Retraining is also required when changes in the workplace or in the type of respirator used render previous training obsolete.

## Program Evaluation

- An evaluation of the workplace shall be conducted, as necessary, to ensure that the provisions of the current written respiratory program are being effectively implemented and that it continues to be effective.
- Employees, required to use respirators, shall be consulted regularly to assess their views on program effectiveness and to identify any problems that need correcting. Factors to be assessed include, but are not limited to:
  - Respirator fit;
  - Appropriate respirator selection for the hazards to which the employee is exposed;
  - Proper respirator use under the workplace conditions the employee encounters; and
  - Proper respirator maintenance.

## Recordkeeping

Written information regarding medical evaluations, fit testing, and respirator program must be established and retained.

- Medical evaluation record shall be retained for each employee subject to medical evaluation.
- A record of the qualitative and quantitative fit tests administered to an employee shall be established and maintained. The record shall include:
  - The name or identification of the employee tested;
  - Type of fit test performed;

- Specific make, model, style, and size of respirator tested;
- Date of test; and
- The pass/fail results for QLFT or the fit factor and strip chart recording or other recording of the test results for QNFTs.

- Fit test records shall be retained for respirator users until the next fit test is administered.
- A written copy of the current respirator program shall be retained at the workplace and made available.
- Records shall be made available whenever an employee or designated representative requests access to a record, AC Corporation shall assure that access is provided in a reasonable time, place, and manner.

## Workplace-Specific Procedures

- A site specific plan shall be developed which include all requirements of this procedure.

# OSHA Respirator Medical Questionnaire

From Appendix C to § 1910.134

**To the employee:** Can you read (circle one)? Yes / No

Company Name: _____

Street Address: _____

City: _____ State: _____ Zip + 4: _____

Contact: _____

Phone: _____ Fax: _____

Patient's Name: _____

**Patient Signature:** _____

Social Security #: _____ Date of Birth: _____

**To the employer:** Answers to questions in Section 1, and to question 9 in Section 2 of Part A, do not require a medical examination.

**Your employer must allow you to answer this questionnaire during normal working hours, or at a time and place that is convenient to you. To maintain your confidentiality, your employer or supervisor must not look at or review your answers, and your employer must tell you now to deliver or send this questionnaire to the health care professional who will review it. You must answer *ALL* questions in order for this form to be processed.**

**Part A. Section 1. (Mandatory)**

The following information must be provided by every employee who has been selected to use any type of respirator (please print).

1. Today's date: _____ 2. Your name: _____
3. Your age (to nearest year): _____ 4. Sex (circle one): Male / Female
5. Your height: _____ ft. _____ in. 6. Your weight: _____ lbs.
7. Your job title: _____
8. A phone number where you can be reached by the health care professional who reviews this questionnaire (include the Area Code):

   _____ 9. The best time to phone you at this number: _____
10. Has your employer told you how to contact the health care professional who will review this questionnaire (circle one): Yes / No
11. Check the type of respirator you will use (you can check more than one category):
    a. ☐ N, R, or P disposable respirator (filter-mask, non-cartridge type only).
    b. ☐ Other type (for example, half- or full-facepiece type, powered-air purifying, supplied-air, self- contained breathing apparatus).
12. Have you worn a respirator (circle one): Yes / No If "yes," what type(s): _____

**Part A. Section 2. (Mandatory)**

Questions 1 - 9 below must be answered by every employee who has been selected to use any type of respirator (please circle "yes" or "no").

1. Do you **currently** smoke tobacco, or have you smoked tobacco in the last month: Yes / No
2. Have you **ever had** any of the following conditions?

| | | | | | |
|---|---|---|---|---|---|
| Seizures (fits) | Yes | No | Diabetes (sugar disease) | Yes | No |
| Allergic reactions that interfere with your breathing | Yes | No | Claustrophobia (fear of closed-in places) | Yes | No |
| Trouble smelling odors | Yes | No | | | |

3. Have you **ever had** any of the following pulmonary or lung problems?

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Asbestosis | Yes | No | Emphysema | Yes | No | Lung cancer | Yes | No |
| Asthma | Yes | No | Pneumonia | Yes | No | Broken ribs | Yes | No |
| Chronic bronchitis | Yes | No | Tuberculosis | Yes | No | Any chest injuries or surgeries | Yes | No |
| Silicosis | Yes | No | Pneumothorax (collapsed lung) | Yes | No | Any other lung problem that you've been told about | Yes | No |

4. Do you **currently** have any of the following symptoms of pulmonary or lung illness?

| | | |
|---|---|---|
| Shortness of breath | Yes | No |
| Shortness of breath when walking fast on level ground or walking up a slight hill or incline | Yes | No |
| Shortness of breath when walking with other people at an ordinary pace on level ground | Yes | No |
| Have to stop for breath when walking at your own pace on level ground | Yes | No |
| Shortness of breath when washing or dressing yourself | Yes | No |
| Shortness of breath that interferes with your job | Yes | No |
| Coughing that produces phlegm (thick sputum) | Yes | No |
| Coughing that wakes you early in the morning | Yes | No |
| Coughing that occurs mostly when you are lying down | Yes | No |
| Coughing up blood in the last month | Yes | No |
| Wheezing | Yes | No |
| Wheezing that interferes with your job | Yes | No |
| Chest pain when you breathe deeply | Yes | No |
| Any other symptoms that you think may be related to lung problems | Yes | No |

5. Have you **ever had** any of the following cardiovascular or heart problems?

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Heart attack | Yes | No | Heart failure | Yes | No | High blood pressure | Yes | No |
| Stroke | Yes | No | Swelling in your legs or feet (not caused by walking) | Yes | No | Any other heart problem that you've been told about | Yes | No |
| Angina | Yes | No | Heart arrhythmia (heart beating irregularly) | Yes | No | | | |

6. Have you **ever had** any of the following cardiovascular or heart symptoms?

| | | |
|---|---|---|
| Frequent pain or tightness in your chest | Yes | No |
| Pain or tightness in your chest during physical activity | Yes | No |
| Pain or tightness in your chest that interferes with your job | Yes | No |
| In the past two years, have you noticed your heart skipping or missing a beat | Yes | No |
| Heartburn or indigestion that is not related to eating | Yes | No |
| Any other symptoms that you think may be related to heart or circulation problems | Yes | No |

7. Do you **currently** take medication for any of the following problems?

| | | | | | |
|---|---|---|---|---|---|
| Breathing or lung problems | Yes | No | Blood pressure | Yes | No |
| Heart trouble | Yes | No | Seizures (fits) | Yes | No |

8. If you've used a respirator, have you **ever had** any of the following problems? (If you've never used a respirator, check the following space and go to question 9:)

| | | | | | |
|---|---|---|---|---|---|
| Eye irritation | Yes | No | General weakness or fatigue | Yes | No |
| Skin allergies or rashes | Yes | No | Any other problem that interferes with your use of a respirator | Yes | No |
| Anxiety | | | | | |

9. Would you like to talk to the health care professional who will review this questionnaire about your answers to this questionnaire? Yes No

**Questions 10 to 15 below must be answered by every employee who has been selected to use either a full-facepiece respirator or a self-contained breathing apparatus (SCBA). For employees who have been selected to use other types of respirators, answering these questions is voluntary.**

10. Have you **ever lost** vision in either eye (temporarily or permanently)? Yes No

11. Do you **currently** have any of the following vision problems?

| | | | | | |
|---|---|---|---|---|---|
| Wear contact lenses | Yes | No | Color blind | Yes | No |
| Wear glasses | Yes | No | Any other eye or vision problem | Yes | No |

12. Have you **ever had** an injury to your ears, including a broken eardrum Yes No

13. Do you **currently** have any of the following hearing problems?

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Difficulty hearing | Yes | No | Wear a hearing aid | Yes | No | Any other hearing or ear problem | Yes | No |

14. Have you **ever had** a back injury? Yes No

15. Do you **currently** have any of the following musculoskeletal problems?

| | | |
|---|---|---|
| Weakness in any of your arms, hands, legs, or feet | Yes | No |
| Back pain | Yes | No |
| Difficulty fully moving your arms and legs | Yes | No |
| Pain or stiffness when you lean forward or backward at the waist | Yes | No |
| Difficulty fully moving your head up or down | Yes | No |
| Difficulty fully moving your head side to side | Yes | No |
| Difficulty bending at your knees | Yes | No |
| Difficulty squatting to the ground | Yes | No |
| Climbing a flight of stairs or a ladder carrying more than 25 lbs | Yes | No |
| Any other muscle or skeletal problem that interferes with using a respirator | Yes | No |

**Part B**

Any of the following questions, and other questions not listed, may be added to the questionnaire at the discretion of the health care professional who will review the questionnaire.

1. In your present job, are you working at high altitudes (over 5,000 feet) or in a place that has lower than normal amounts of oxygen — Yes No
   If "yes," do you have feelings of dizziness, shortness of breath, pounding in your chest, or other symptoms when you're working under these conditions? — Yes No
2. At work or at home, have you ever been exposed to hazardous solvents, hazardous airborne chemicals (e.g., gases, fumes, or dust), or have you come into skin contact with hazardous chemicals — Yes No
   If "yes," name the chemicals if you know them: _____
3. Have you ever worked with any of the materials, or under any of the conditions, listed below:

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Asbestos | Yes | No | Silica (e.g., in sandblasting) | Yes | No | Tungsten/cobalt (e.g., grinding or welding this material) | Yes | No |
| Beryllium | Yes | No | Aluminum | Yes | No | | | |
| Iron | Yes | No | Tin | Yes | No | Coal (for example, mining) | Yes | No |
| Dusty environments | Yes | No | Any other hazardous exposures | Yes | No | If "yes," describe these exposures | | |

4. List any second jobs or side businesses you have: _____
5. List your previous occupations: _____
6. List your current and previous hobbies: _____
7. Have you been in the military services? — Yes No
   If "yes," were you exposed to biological or chemical agents (either in training or combat): — Yes No
8. Have you ever worked on a HAZMAT team? — Yes No
9. Other than medications for breathing and lung problems, heart trouble, blood pressure, and seizures mentioned earlier in this questionnaire, are you taking any other medications for any reason (including over-the-counter medications): — Yes No
   If "yes," name the medications if you know them: _____
10. Will you be using any of the following items with your respirator(s)?

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| HEPA Filters | Yes | No | Canisters (for example, gas masks) | Yes | No | Cartridges | Yes | No |

11. How often are you expected to use the respirator(s) (circle "yes" or "no" for all answers that apply to you)?

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Escape only (no rescue) | Yes | No | Emergency rescue only | Yes | No | Less than 5 hours **per week** | Yes | No |
| 2 to 4 hours per day | Yes | No | Over 4 hours per day | | | | | |

12. During the period you are using the respirator(s), is your work effort:

    a. **Light** (less than 200 kcal per hour): Yes No
    If "yes," how long does this period last during the average shift: ____ hrs. ____ minutes. Examples of a light work effort are **sitting** while writing, typing, drafting, or performing light assembly work; or **standing** while operating a drill press (1–3 lbs.) or controlling machines.

    b. **Moderate** (200 to 350 kcal per hour): Yes No
    If "yes," how long does this period last during the average shift: ____ hrs. ____ minutes. Examples of moderate work effort are **sitting** while nailing or filing; **driving** a truck or bus in urban traffic; **standing** while drilling, nailing, performing assembly work, or transferring a moderate load (about 35 lbs.) at trunk level; **walking** on a level surface about 2 mph or down a 5-degree grade about 3 mph; or **pushing** a wheelbarrow with a heavy load (about 100 lbs.) on a level surface.

    c. **Heavy** (above 350 kcal per hour): Yes No
    If "yes," how long does this period last during the average shift: ____ hrs. ____ minutes.
    Examples of heavy work are **lifting** a heavy load (about 50 lbs.) from the floor to your waist or shoulder; working on a loading dock; **shoveling; standing** while bricklaying or chipping castings; **walking** up an 8-degree grade about 2 mph; climbing stairs with a heavy load (about 50 lbs.).

13. Will you be wearing protective clothing and/or equipment (other than the respirator) when you're using your respirator: Yes No
    If "yes," describe this protective clothing and/or equipment:

14. Will you be working under hot conditions (temperature exceeding 77°F): Yes No

15. Will you be working under humid conditions: Yes No

16. Describe the work you'll be doing while you're using your respirator(s): _____

17. Describe any special or hazardous conditions you might encounter when you're using your respirator(s) (for example, confined spaces, life-threatening gases): _____

18. Provide the following information, if you know it, for each toxic substance that you'll be exposed to when you're using your respirator(s):
    Name of the first toxic substance: _____
    Estimated maximum exposure level per shift: _____
    Duration of exposure per shift: _____
    Name of the second toxic substance: _____
    Estimated maximum exposure level per shift: _____
    Duration of exposure per shift: _____
    Name of the third toxic substance: _____
    Estimated maximum exposure level per shift: _____
    Duration of exposure per shift: _____
    The name of any other toxic substances that you'll be exposed to while using your respirator:
    _____
    _____
    _____

19. Describe any special responsibilities you'll have while using your respirator(s) that may affect the safety and well-being of others (for example, rescue, security): _____

**Appendix D to § 1910.134 (Non-Mandatory) Information for Employees Using Respirators When Not Required Under the Standard**

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, of if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard. You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations.
2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

*This form should be kept confidential and mailed to:*

*NovantHealth Occupational Medicine*
*Consult Division*
*PO Box 24609*
*Winston-Salem NC 27114-4609*
*336/718-1549 fax*

OSHA Respirator Medical Evaluation Questionnaire, Version 1.1

If limited English proficient or hearing impaired, offer interpreter at no additional cost:

☐ Interpreter Accepted _____ ☐ Interpreter Refused

(Name/Number of Person/Services Chosen/Used)

# 1 PURPOSE AND SCOPE

## ■ Purpose

This procedure provides the guidelines for the proper rigging activities are accomplished safely lifting and in accordance with applicable specifications, codes, and regulations.

## ■ Scope

This procedure applies to all AC Corporation personnel and subcontractors working on projects where rigging and lifting safety requirements are applicable.

# 2 REFERENCES

- Title 29, Code of Federal Regulations, Parts 1910 and 1926, *Occupational Safety and Health Administration* (OSHA), U.S. Department of Labor.
- ANSI B-30 Series Standards, Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Slings.
- ISO 15513 Cranes – Competency Requirements for Crane Operators, Slingers

# 3 GENERAL

## ■ Responsibilities

- The *Job Site Engineer* is responsible to coordinate lifts.
- The *Job Site Superintendent or Foreman* is responsible for implementing, enforcing and monitoring this procedure in their job site.
- The *Safety Director* is responsible for coordinate training compliance with this procedure.
- The *Employee* is responsible for working within their qualifications and following AC Corporation procedures.

**Procedures**

Rigging equipment for material handling:

- Rigging equipment for material handling shall be inspected prior to use on each shift and as necessary during its use to ensure that it is safe. Defective rigging equipment shall be removed from service.
- Rigging equipment shall not be loaded in excess of its recommended safe working load, for the specific equipment.
- Rigging equipment, when not in use, shall be removed from the immediate work area so as not to present a hazard to employees.
- Special custom design grabs, hooks, clamps, or other lifting accessories, for such units as modular panels, prefabricated structures and similar materials, shall be marked to indicate the safe working loads and shall be proof-tested prior to use to 125 percent of their rated load.

- Slings used in conjunction with other material handling equipment for the movement of material by hoisting, shall be made from alloy steel chain, wire rope, metal mesh, natural or synthetic fiber rope (conventional three strand construction), and synthetic web (nylon, polyester, and polypropylene).
- Each day before being used, the sling and all fastenings and attachments shall be inspected for damage or defects by a competent person designated by the employer. Additional inspections shall be performed during sling use, where service conditions warrant. Damaged or defective slings shall be immediately removed from service.

**Rigging Practices**

- All employees shall be kept clear of loads about to be lifted and of suspended loads.
- All employees shall never allow a load to be over their head; not even momentarily.
- Use softeners (loops, thimbles and corner pads) to prevent damage to slings when used around corners or on cutting edges.
- Never allow wire rope to lie on the ground for any length of time or on rusty steel or near solvents, chemicals or corrosive substances.
- Slings shall not be pulled from between or under loads with load resting on the sling.
- Keep all rope away from flame cutting or welding operations.
- Never use rope as sling material.
- Never wrap a wire rope completely around a hook.
- Do not bend wire rope near any attached fitting.
- The sling must be selected to suite the most heavily loaded leg rather than the total weight when using multi-legged sling to lift loads in which one end is heavier than the other.
- When using 3 and 4 legged sling configurations, any two legs must be capable of supporting the entire load.
- Where possible, wire rope choker hitches should include a shackle with the eye around the shackle pin to prevent breaking wires of the choke. The choker hitch should be “snugged down” prior to lifting, not after tension is applied.
- Unless authorized by the hook manufacturer when two or more sling/rope eyes are placed over a hook, install a shackle, pin resting in the hook, and place the rope eyes in the bowl of the shackle.
- Properly rig all loads to prevent dislodgment of any part.
- Use guide ropes or tag lines to prevent the rotation or uncontrolled motion of the load when necessary.

- Loads must be safely landed and properly blocked before being unhooked and unslung. Tag lines shall not be used in situations that jeopardize the safety of the lift.
- Lifting beams should be plainly marked with their weight and designed working load and should only be used in the manner for which they were designed.
- The hoist rope or chain shall never be wrapped around the load. The load shall be attached to the hook by slings or other rigging devices that are adequate for the load being lifted.
- Multiple part lines shall not be twisted around each other.
- The hook should be brought over the center of gravity of load before the lift is started.
- If there has been a slack rope condition, determine that the rope is properly seated on the drum and in the sheaves prior to lifting.
- Keep hands away from pinch points as the slack is being taken up.
- Leather gloves are recommended when handling wire rope.

## WEEKLY INSPECTION FOR RIGGING EQUIPMENT

Week of _____ 20_____ thru _____ 20_____

Shift: _____ Craft_____

In accordance with OSHA, 29 CFR 1910.184, completion of this form will verify that all rigging equipment, tools, materials, or accessories used for the purpose of hoisting, lifting, or handling materials or machinery by employees assigned to my supervision on this shift are inspected prior to the use of such equipment and during use, as necessary, to ensure that it is safe. Any defective item(s) found are to be removed from service. Inspection performed during the week shown above, on the individual days as indicated below.

| ITEMS | MON | TUES | WED | THUR | FRI | SAT | SUN | COMMENTS |
|---|---|---|---|---|---|---|---|---|
| Web Slings | | | | | | | | |
| Wire Rope Slings (Chokers) | | | | | | | | |
| Spreader Bar | | | | | | | | |
| 2-Way Spreader | | | | | | | | |
| 4-Way Spreader | | | | | | | | |
| Shackles | | | | | | | | |
| Hooks | | | | | | | | |
| Chain Falls | | | | | | | | |
| Come-a-Longs | | | | | | | | |
| Others | | | | | | | | |

Signed:_____

Designated Responsible Supervisor

*Instructions:*

Each designated responsible supervisor is responsible for inspection of rigging equipment used by his/her crew. This form is to be completed and returned to the Safety Supervisor. Defective item(s) removed from service are to be noted under "Comments" in the appropriate category, showing the number of items removed. Each box shall be marked in the following manner:

OK = Inspection Completed
X = Not applicable or not in use

## 1 PURPOSE AND SCOPE

- **Purpose**

This procedure provides the guidelines for erection, use, dismantlement, and storage of scaffolding, ladders and elevated work platforms.

- **Scope**

This procedure applies to all AC Corporation personnel and subcontractors where scaffold requirements are applicable.

## 2 REFERENCES

- Title 29, Code of Federal Regulations, Parts 1910 and 1926, *Occupational Safety and Health Administration* (OSHA), U.S. Department of Labor.

## 3 GENERAL

The safe and efficient erection, use, dismantling, and storage of scaffolds, ladders and elevated work platforms are considered important objectives in maintaining a safe work environment.

All employees are responsible for fully supporting and strictly adhering to the provisions of this procedure. Employees who observe violations of these requirements are responsible for reporting unsafe conditions or unsafe practices to their supervisor immediately.

- **Definitions**

*Adjustable suspension scaffold* - a suspension scaffold equipped with a hoist(s) that can be operated by an employee(s) on the scaffold.

*Boatswains' chair* - a single-point adjustable suspension scaffold consisting of a seat or sling designed to support one employee in a sitting position.

*Competent person* - one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

*Double pole (independent pole) scaffold* - supported scaffold consisting of a platform(s) resting on cross beams (bearers) supported by ledgers and a double row of uprights independent of support (except ties, guys, braces) from any structure.

*Tubular welded frame scaffold (fabricated frame scaffold)* - a scaffold consisting of a platform(s) supported on fabricated end frames with integral posts, horizontal bearers, and intermediate members.

*Float (ship) scaffold* - a suspension scaffold consisting of a braced platform resting on two parallel bearers and hung from overhead supports by ropes of fixed length.

*Form scaffold* - means a supported scaffold consisting of a platform supported by brackets attached to formwork.

*Lean-to scaffold* - a supported scaffold which is kept erect by tilting it toward and resting it against a building or structure.

*Mobile scaffold* - a powered or non-powered, portable, caster or wheel-mounted supported scaffold.

*Multi-level suspended scaffold* - a two-point or multi-point adjustable suspension scaffold with a series of platforms at various levels resting on common stirrups.

*Multi-point adjustable suspension scaffold* - a suspension scaffold consisting of a platform(s) which is suspended by more than two ropes from overhead supports and equipped with means to raise and lower the platform to desired work levels. Such scaffolds include chimney hoists.

*Needle beam scaffold* - a platform suspended from needle beams.

*Qualified* - one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his/her ability to solve or resolve problems related to the subject matter, the work, or the environment.

*Self-contained adjustable scaffold* - a combination supported and suspension scaffold consisting of an adjustable platform(s) mounted on an independent supporting frame(s) not a part of the object being worked on, and which is equipped with a means to permit the raising and lowering of the platform(s). Such systems include rolling roof rigs, rolling outrigger systems, and some masons' adjustable supported scaffolds.

*Shore scaffold* - a supported scaffold which is placed against a building or structure and held in place with props.

*Single-point adjustable suspension scaffold* - a suspension scaffold consisting of a platform suspended by one rope from an overhead support and equipped with means to permit the movement of the platform to desired work levels.

*Single-pole scaffold* - a supported scaffold consisting of a platform(s) resting on bearers, the outside ends of which are supported on runners secured to a single row of posts or uprights, and the inner ends of which are supported on or in a structure or building wall.

*Step, platform, and trestle ladder scaffold* - a platform resting directly on the rungs of step ladders or trestle ladders.

*Stonesetters' multi-point adjustable suspension scaffold* - a continuous run suspension scaffold designed and used for stonesetters' operations.

*Supported scaffold* - one or more platforms supported by outrigger beams, brackets, poles, legs, uprights, posts, frames, or similar rigid support.

*Suspension scaffold* - one or more platforms suspended by ropes or other non-rigid means from an overhead structure(s).

*System scaffold* - a scaffold consisting of posts with fixed connection points that accept runners, bearers, and diagonals that can be interconnected at predetermined levels.

*Tank builders' scaffold* - a supported scaffold consisting of a platform resting on brackets that are either directly attached to a cylindrical tank or attached to devices that are attached to such a tank.

*Tube and coupler scaffold* - a supported or suspended scaffold consisting of a platform(s) supported by tubing, erected with coupling devices connecting uprights, braces, bearers, and runners.

*Two-point suspension scaffold (swing stage)* - a suspension scaffold consisting of a platform supported by hangers (stirrups) suspended by two ropes from overhead supports and equipped with means to permit the raising and lowering of the platform to desired work levels.

## ■ Responsibilities

The *Site Supervisor/Foreman* is responsible for implementing and enforcing this procedure.

The *Safety Director* is responsible for and monitoring compliance with this procedure.

The *Competent Person* is responsible for the supervision and direction of the erection, movement, dismantlement or alteration of scaffolds; inspection of scaffold components for visible defects prior to each shift and after each occurrence which could affect a scaffold's structural integrity; and other responsibilities as addressed in this procedure.

## 4 PROCEDURE

The minimum requirements of this procedure, as set forth in the 29 CFR 1926.450-452 and 1926.454 Subpart L - Scaffolds Standard by the Federal Occupational Safety and Health Administration (OSHA), are extensive and therefore must be reviewed by persons responsible for implementing, enforcing, administering, and monitoring the erection, use, dismantlement, and storage of scaffolds and elevated work platforms.

### General requirements

### Capacity

- Scaffolds shall be designed by a qualified person and shall be constructed and loaded in accordance with that design.
- Each scaffold and scaffold component shall be capable of supporting, without failure, its own weight and at least 4 times the maximum intended load applied or transmitted to it.
- Direct connections to roofs and floors, and counterweights used to balance adjustable suspension scaffolds, shall be capable of resisting at least 4 times the tipping moment imposed by the scaffold operating at either the rated load of the hoist, or 1.5 (minimum) times the tipping moment imposed by the scaffold operating at the stall load of the hoist, whichever is greater.
- Each suspension rope, including connecting hardware, used on non-adjustable suspension scaffolds shall be capable of supporting, without failure, at least 6 times the maximum intended load applied or transmitted to that rope.
- Each suspension rope, including connecting hardware, used on adjustable suspension scaffolds shall be capable of supporting, without failure, at least 6 times the maximum intended load applied or transmitted to that rope with

the scaffold operating at either the rated load of the hoist, or 2 (minimum) times the stall load of the hoist, whichever is greater.

— The stall load of any scaffold hoist shall not exceed 3 times its rated load.

- **Scaffold Platform Construction**

— Each platform on all working levels of scaffolds shall be fully planked or decked between the front uprights and the guardrail supports as follows:

◊ Each platform unit (e.g., scaffold plank, fabricated plank, fabricated deck, or fabricated platform) shall be fully decked with no gaps or openings. There shall be no space between adjacent units, and between platforms and adjacent uprights.

◊ The requirement to provide full planking or decking does not apply to platforms used solely by employees performing scaffold erection or dismantling. In these situations, only the planking that is established as necessary to provide safe working conditions is required.

— Except as stated above, each scaffold platform and walkway shall be at least 18inches (46 cm) wide.

◊ There is no minimum width requirement for boatswains' chairs.

◊ Where scaffolds must be used in areas that it can be demonstrated are so narrow that platforms and walkways cannot be at least 18 inches (46 cm) wide, such platforms and walkways shall be as wide as feasible, and employees on those platforms and walkways shall be protected from fall hazards by the use of guardrails and/or personal fall arrest systems.

— The front edge of all platforms shall not be more than 6 inches from the face of the work, unless guardrail systems are erected along the front edge and/or personal fall arrest systems are used to protect employees from falling.

— Each end of a platform, unless cleated or otherwise restrained by hooks or equivalent means, shall extend over the centerline of its support at least 6 inches (15 cm).

— Each end of a platform 10 feet or less in length shall not extend over its support more than 12 inches (30 cm) unless the platform is designed and installed so that the cantilevered portion of the platform is able to support employees and/or materials without tipping, or has guardrails which block employee access to the cantilevered end.

— Each platform greater than 10 feet in length shall not extend over its support more than 18 inches (46 cm), unless platform is designed and installed so that the cantilevered portion of the platform is able to support employees and/or materials without tipping, or has guardrails which block employee access to the cantilevered end.

— On scaffolds where scaffold planks are abutted to create a long platform, each abutted end shall rest on a separate support surface. This provision

does not preclude the use of common support members, such as "T" sections, to support abutting planks, or hook on platforms designed to rest on common supports.

— On scaffolds where platforms are overlapped to create a long platform, the overlap shall occur only over supports, and shall not be less than 12 inches (30 cm) unless the platforms are nailed together or otherwise restrained to prevent movement.

— At all points of a scaffold where the platform changes direction, such as turning a corner, any platform that rests on a bearer at an angle other than a right angle shall be laid first, and platforms which rest at right angles over the same bearer shall be laid second, on top of the first platform.

— Wood platforms shall not be covered with opaque finishes, except that platform edges may be covered or marked for identification. Platforms may be coated periodically with wood preservatives, fire-retardant finishes, and slip-resistant finishes; however, the coating may not obscure the top or bottom wood surfaces.

— All wood platforms should be treated with fire-retardant finishes so as to reduce the risk of fire from “hot work” operations.

— Scaffold components manufactured by different manufacturers shall not be intermixed or modified except as allowed by the manufacturer of that equipment.

— Scaffold components made of dissimilar metals shall not be used together unless a competent person has determined that galvanic action will not reduce the strength of any component.

- **Criteria for Supported Scaffolds**

— Supported scaffolds with a height to base width (including outrigger supports, if used) ratio of more than four to one (4:1) shall be restrained from tipping by guying, tying, bracing, or equivalent means, as follows:

◊ Guys, ties, and braces shall be installed at locations where horizontal members support both inner and outer legs.

◊ Guys, ties, and braces shall be installed according to the scaffold manufacturer's recommendations or at the closest horizontal member to the 4:1 height and be repeated vertically at locations of horizontal members every 20 feet (6.1 m) or less thereafter for scaffolds 3 feet (0.91 m) wide or less, and every 25 feet or less thereafter for scaffolds greater than 3 feet (0.91 m) wide. The top guy, tie or brace of completed scaffolds shall be placed no further than the 4:1 height from the top. Such guys, ties and braces shall be installed at each end of the scaffold and at horizontal intervals not to exceed 30 feet (9.1 m) (measured from one end [not both] towards the other).

- ◊ Ties, guys, braces, or outriggers shall be used to prevent the tipping of supported scaffolds in all circumstances where an eccentric load, such as a cantilevered work platform, is applied or is transmitted to the scaffold.
- ◊ A qualified person shall determine the structural integrity of steel, reinforcing steel, and concrete or building members prior to the attachment of scaffold ties, guys, or bracing.

— Supported scaffold poles, legs, posts, frames, and uprights shall bear on base plates, mudsills or other adequate firm foundation. Mudsills when used shall be constructed of 2 x 10 in. lumber.

- ◊ Footings shall be level, sound, rigid, and capable of supporting the loaded scaffold without settling or displacement
- ◊ Unstable objects shall not be used to support scaffolds or platform units
- ◊ Unstable objects shall not be used as working platforms.

— Supported scaffold poles, legs, posts, frames, and uprights shall be plumb and braced to prevent swaying and displacement.

— When screw jacks are used, they shall be used in accordance to manufacturer's recommendations but shall not be extended in excess of 12 in. in height.

- **Criteria for Suspension Scaffolds**

— All suspension scaffold support devices, such as outrigger beams, cornice hooks, parapet clamps, and similar devices, shall rest on surfaces capable of supporting at least 4 times the load imposed on them by the scaffold operating at the rated load of the hoist (or at least 1.5 times the load imposed on them by the scaffold at the stall capacity of the hoist, whichever is greater).

— Suspension scaffold outrigger beams, when used, shall be made of structural metal or equivalent strength material, and shall be restrained to prevent movement.

— The inboard ends of suspension scaffold outrigger beams shall be stabilized by bolts or other direct connections to the floor or roof deck, or they shall have their inboard ends stabilized by counterweights.

— Before the scaffold is used, direct connections shall be evaluated by a competent person who shall confirm, based on the evaluation, that the supporting surfaces are capable of supporting the loads to be imposed.

- ◊ Counterweights shall be made of non-flowable material. Sand, gravel and similar materials that can be easily dislocated shall not be used as counterweights.
- ◊ Only those items specifically designed as counterweights shall be used to counterweight scaffold systems. Construction materials such as, but

not limited to, masonry units and rolls of roofing felt, shall not be used as counterweights.

- ◊ Counterweights shall be secured by mechanical means to the outrigger beams to prevent accidental displacement.
- ◊ Counterweights shall not be removed from an outrigger beam until the scaffold is disassembled.
- ◊ Outrigger beams which are not stabilized by bolts or other direct connections to the floor or roof deck shall be secured by tiebacks.
- ◊ Tiebacks shall be equivalent in strength to the suspension ropes.
- ◊ Outrigger beams shall be placed perpendicular to its bearing support (usually the face of the building or structure). However, where it can demonstrate that it is not possible to place an outrigger beam perpendicular to the face of the building or structure because of obstructions that cannot be moved, the outrigger beam may be placed at some other angle, provided opposing angle tiebacks are used.
- ◊ Tiebacks shall be secured to a structurally sound anchorage on the building or structure. Sound anchorages include structural members, but do not include standpipes, vents, other piping systems, or electrical conduit.
- ◊ Tiebacks shall be installed perpendicular to the face of the building or structure, or opposing angle tiebacks shall be installed. Single tiebacks installed at an angle are prohibited.

— Suspension scaffold outrigger beams shall be:

- ◊ Provided with stop bolts or shackles at both ends;
- ◊ Securely fastened together with the flanges turned out when channel iron beams are used in place of I-beams;
- ◊ Installed with all bearing supports perpendicular to the beam center line;
- ◊ Set and maintained with the web in a vertical position; and
- ◊ When an outrigger beam is used, the shackle or clevis with which the rope is attached to the outrigger beam shall be placed directly over the center line of the stirrup.

— Suspension scaffold support devices such as cornice hooks, roof hooks, roof irons, parapet clamps, or similar devices shall be:

- ◊ Made of steel, wrought iron, or materials of equivalent strength;
- ◊ Supported by bearing blocks; and
- ◊ Secured against movement by tiebacks installed at right angles to the face of the building or structure, or opposing angle tiebacks shall be installed and secured to a structurally sound point of anchorage on the

building or structure. Sound points of anchorage include structural members, but do not include standpipes, vents, other piping systems, or electrical conduit.

- ◊ Tiebacks shall be equivalent in strength to the hoisting rope.

— When winding drum hoists are used on a suspension scaffold, they shall contain not less than four wraps of the suspension rope at the lowest point of scaffold travel. When other types of hoists are used, the suspension ropes shall be long enough to allow the scaffold to be lowered to the level below without the rope end passing through the hoist, or the rope end shall be configured or provided with means to prevent the end from passing through the hoist.

— The use of repaired wire rope as suspension rope is prohibited.

— Wire suspension ropes shall not be joined together except through the use of eye splice thimbles connected with shackles or coverplates and bolts.

— The load end of wire suspension ropes shall be equipped with proper size thimbles and secured by eyesplicing or equivalent means.

— Ropes shall be inspected for defects by a competent person prior to each workshift and after every occurrence which could affect a rope's integrity. Ropes shall be replaced if any of the following conditions exist:

- ◊ Any physical damage which impairs the function and strength of the rope.
- ◊ Kinks that might impair the tracking or wrapping of rope around the drum(s) or sheave(s).
- ◊ Six randomly distributed broken wires in one rope lay or three broken wires in one strand in one rope lay.
- ◊ Abrasion, corrosion, scrubbing, flattening or peening causing loss of more than one-third of the original diameter of the outside wires.
- ◊ Heat damage caused by a torch or any damage caused by contact with electrical wires.
- ◊ Evidence that the secondary brake has been activated during an overspeed condition and has engaged the suspension rope.

— Swaged attachments or spliced eyes on wire suspension ropes shall not be used unless they are made by the wire rope manufacturer or a qualified person.

— When wire rope clips are used on suspension scaffolds:

- ◊ There shall be a minimum of 3 wire rope clips installed, with the clips a minimum of 6 rope diameters apart.

- ◊ Clips shall be installed according to the manufacturer's recommendations.
- ◊ Clips shall be retightened to the manufacturer's recommendations after the initial loading.
- ◊ Clips shall be inspected and retightened to the manufacturer's recommendations at the start of each workshift thereafter.
- ◊ U-bolt clips shall not be used at the point of suspension for any scaffold hoist.
- ◊ When U-bolt clips are used, the U-bolt shall be placed over the dead end of the rope, and the saddle shall be placed over the live end of the rope.

— Suspension scaffold power-operated hoists and manual hoists shall be tested and listed by a qualified testing laboratory.

— Gasoline-powered equipment and hoists shall not be used on suspension scaffolds.

— Gears and brakes of power-operated hoists used on suspension scaffolds shall be enclosed.

— In addition to the normal operating brake, suspension scaffold power-operated hoists and manually operated hoists shall have a braking device or locking pawl which engages automatically when a hoist makes either of the following uncontrolled movements: an instantaneous change in momentum or an accelerated overspeed.

— Manually operated hoists shall require a positive crank force to descend.

— Two-point and multi-point suspension scaffolds shall be tied or otherwise secured to prevent them from swaying, as determined to be necessary based on an evaluation by a competent person. Window cleaners' anchors shall not be used for this purpose.

— Devices whose sole function is to provide emergency escape and rescue shall not be used as working platforms. This provision does not preclude the use of systems which are designed to function both as suspension scaffolds and emergency systems.

- **Access**

— This paragraph applies to scaffold access for all employees. Access requirements for employees erecting or dismantling supported scaffolds are specifically addressed later in this procedure.

— When scaffold platforms are more than 12 inches. above or below a point of access, portable ladders, hook-on ladders, attachable ladders, stair towers (scaffold stairways/towers), stairway-type ladders (such as ladder stands), ramps, walkways, integral prefabricated scaffold access, or direct access

from another scaffold, structure, personnel hoist, or similar surface shall be used. Crossbraces shall not be used as a means of access.

- When climbing ladders, employees shall maintain three-point contact at all times. Tools or materials may not be carried up in an employees hands. Toeboards shall not be used as handholds or foot holds.
- Portable, hook-on, and attachable ladders:
  - ◊ Portable, hook-on, and attachable ladders shall be positioned so as not to tip the scaffold.
  - ◊ Hook-on and attachable ladders shall be positioned so that their bottom rung is not more than 12 inches above the scaffold supporting level or a height equal to the vertical rung spacing, which ever is larger.
  - ◊ When hook-on and attachable ladders are used on a supported scaffold more than 35 feet (10.7 m) high, they shall have rest platforms at 35-foot (10.7 m) maximum vertical intervals.
  - ◊ Hook-on and attachable ladders shall be specifically designed for use with the type of scaffold used.
  - ◊ Hook-on and attachable ladders shall have a minimum rung length of 11 1/2 inches (29 cm).
  - ◊ Hook-on and attachable ladders shall have uniformly spaced rungs with a maximum spacing between rungs of 16 3/4 inches.
- Stairway-type ladders shall:
  - ◊ Be positioned such that the vertical distance between the bottom step above the scaffold supporting level is not more than 12 inches or a vertical height equal to the distance between the steps of the ladder, whichever is greater.
  - ◊ Be provided with rest platforms at 12 foot (3.7 m) maximum vertical intervals.
  - ◊ Have a minimum step width of 16 inches (41 cm), except that mobile scaffold stairway-type ladders shall have a minimum step width of 11 1/2 inches (30 cm).
  - ◊ Have slip-resistant treads on all steps and landings.
- Stairtowers (scaffold stairway/towers) shall be positioned such that their bottom step is not more than 12 inches above the scaffold supporting level.
  - ◊ A stairrail consisting of a toprail and a midrail shall be provided on each side of each scaffold stairway.
  - ◊ The toprail of each stairrail system shall also be capable of serving as a handrail, unless a separate handrail is provided.

- ◊ Handrails, and toprails that serve as handrails, shall provide an adequate handhold for employees grasping them to avoid falling.
- ◊ Stairrail systems and handrails shall be surfaced to prevent injury to employees from punctures or lacerations, and to prevent snagging of clothing.
- ◊ The ends of stairrail systems and handrails shall be constructed so that they do not constitute a projection hazard.
- ◊ Handrails, and toprails that are used as handrails, shall be at least 3 inches (7.6 cm) from other objects.
- ◊ Stairrails shall be not less than 28 inches (71 cm) nor more than 37 inches (94 cm) from the upper surface of the stairrail to the surface of the tread, in line with the face of the riser at the forward edge of the tread.
- ◊ A landing platform at least 18 inches (45.7 cm) wide by at least 18 inches (45.7 cm) long shall be provided at each level.
- ◊ Each scaffold stairway shall be at least 18 inches (45.7 cm)wide between stairrails.
- ◊ Treads and landings shall have slip-resistant surfaces.
- ◊ Stairways shall be installed between 40 degrees and 60 degrees from the horizontal.
- ◊ Guardrails shall be provided on the open sides and ends of each landing.
- ◊ Riser height shall be uniform, within 1/4 inch, (0.6 cm) for each flight of stairs. Greater variations in riser height are allowed for the top and bottom steps of the entire system, not for each flight of stairs.
- ◊ Tread depth shall be uniform, within 1/4 inch, for each flight of stairs.

— Ramps and Walkways:

- ◊ Ramps and walkways 6 feet (1.8 m) or more above lower levels shall have guardrail systems which comply with the fall protection portion of these guidelines.
- ◊ No ramp or walkway shall be inclined more than a slope of one (1) vertical to three (3) horizontal (20 degrees above the horizontal).
- ◊ If the slope of a ramp or a walkway is steeper than one (1) vertical in eight (8) horizontal, the ramp or walkway shall have cleats not more than fourteen (14) inches (35 cm) apart which are securely fastened to the planks to provide footing.

— Integral prefabricated scaffold access frames shall:

- ◊ Be specifically designed and constructed for use as ladder rungs.

- ◊ Have a rung length of at least 8 inches (20 cm).
- ◊ Not be used as work platforms when rungs are less than 11 1/2 inches in length, unless each affected employee uses fall protection, or a positioning device.
- ◊ Be uniformly spaced within each frame section.
- ◊ Be provided with rest platforms at 35-foot (10.7 m) maximum vertical intervals on all supported scaffolds more than 35 feet (10.7 m) high.
- ◊ Have a maximum spacing between rungs of 16 3/4 inches (43 cm). Non-uniform rung spacing caused by joining end frames together is allowed, provided the resulting spacing does not exceed 16 3/4 inches (43 cm).

— Steps and rungs of ladder and stairway type access shall line up vertically with each other between rest platforms.

— Direct access to or from another surface shall be used only when the scaffold is not more than 6 inches horizontally and not more than 12 inches vertically from the other surface.

— Access for employees erecting or dismantling supported scaffolds shall be in accordance with the following:

- ◊ AC Corporation shall provide safe means of access for each employee erecting or dismantling a scaffold where the provision of safe access is feasible and does not create a greater hazard. The competent person and the site safety representative shall determine whether it is feasible or would pose a greater hazard to provide, and have employees use a safe means of access. This determination shall be based on site conditions and the type of scaffold being erected or dismantled.
- ◊ Hook-on or attachable ladders shall be installed as soon as scaffold erection has progressed to a point that permits safe installation and use.
- ◊ When erecting or dismantling tubular welded frame scaffolds, (end) frames, with horizontal members that are parallel, level and are not more than 22 inches apart vertically may be used as climbing devices for access, provided they are erected in a manner that creates a usable ladder and provides good hand hold and foot space.
- ◊ Cross braces on tubular welded frame scaffolds shall not be used as a means of access or egress.

- **Use**

— Scaffolds and scaffold components shall not be loaded in excess of their maximum intended loads or rated capacities, whichever is less.

— The use of shore or lean-to scaffolds is prohibited.

- Scaffolds and scaffold components shall be inspected for visible defects by a competent person before each work shift, and after any occurrence which could affect a scaffold's structural integrity.
- Any part of a scaffold damaged or weakened such that its strength is less than that required by the capacity portion of this section shall be immediately repaired or replaced, braced to meet those provisions, or removed from service until repaired.
- Scaffolds shall not be moved horizontally while employees are on them.
- Scaffolds shall not be erected, used, dismantled, altered, or moved such that they or any conductive material handled on them might come closer to exposed and energized power lines than as follows:

| Insulated & Uninsolated Line Voltage | Minimum Distance |
|---|---|
| Less than 50 kV | 10 feet (3.1m) |
| More than 50 kV | 10 feet (3.1 m) plus 4.0 inches (10 cm) for each 1 kV over 50 kV |

*Note:* Scaffolds and materials may only be closer to power lines than specified above where the utility company or electrical system operator has been notified of the work and de-energized the lines, relocated the lines, or installed protective coverings to prevent accidental contact with the lines.

- Scaffolds shall be erected, moved, dismantled, or altered only under the supervision and direction of a competent person qualified in scaffold erection, moving, dismantling or alteration. Such activities shall be performed only by experienced and trained employees selected for such work by the competent person.
- Employees shall be prohibited from working on scaffolds covered with snow, ice, or other slippery material except as necessary for removal of such materials.
- Where swinging loads are being hoisted onto or near scaffolds such that the loads might contact the scaffold, tag lines or equivalent measures to control the loads shall be used.
- Suspension ropes supporting adjustable suspension scaffolds shall be of a diameter large enough to provide sufficient surface area for the functioning of brake and hoist mechanisms.
- Suspension ropes shall be shielded from heat-producing processes. When acids or other corrosive substances are used on a scaffold, the ropes shall be shielded, treated to protect against the corrosive substances, or shall be of a material that will not be damaged by the substance being used.

- Work on or from scaffolds is prohibited during storms or high winds unless a competent person has determined that it is safe for employees to be on the scaffold and those employees are protected by a personal fall arrest system or wind screens. Wind screens shall not be used unless the scaffold is secured against the anticipated wind forces imposed.
- Debris shall not be allowed to accumulate on platforms.
- Makeshift devices, such as but not limited to boxes and barrels, shall not be used on top of scaffold platforms to increase the working level height of employees.
- Ladders shall not be used on scaffolds to increase the working level height of employees, except on large area scaffolds where the following conditions have been satisfied:
  - When the ladder is placed against a structure which is not a part of the scaffold, the scaffold shall be secured against the sideways thrust exerted by the ladder.
  - The platform units shall be secured to the scaffold to prevent their movement.
  - The ladder legs shall be on the same platform or other means shall be provided to stabilize the ladder against unequal platform deflection.
  - The ladder legs shall be secured to prevent them from slipping or being pushed off the platform.
- Platforms shall not deflect more than 1/60 of the span when loaded.
- No welding, burning, or open flame work shall be performed on any staging suspended by means of fiber or synthetic rope. Only treated or protected fiber or synthetic ropes shall be used for or near any work involving the use of corrosive substances or chemicals.
- To reduce the possibility of welding current arcing through the suspension wire rope when performing welding from suspended scaffolds, the following precautions shall be taken, as applicable:
  - An insulated thimble shall be used to attach each suspension wire rope to its hanging support (such as cornice hook or outrigger). Excess suspension wire rope and any additional independent lines shall be insulated from grounding.
  - The suspension wire rope shall be covered with insulating material extending at least 4 feet (1.2 m) above the hoist. If there is a tail line below the hoist, it shall be insulated to prevent contact with the platform. The portion of the tail line that hangs free below the scaffold shall beguided or retained, or both, so that it does not become grounded.
  - Each hoist shall be covered with insulated protective covers.

- ◊ In addition to a work lead attachment required by the welding process, a grounding conductor shall be connected from the scaffold to the structure. The size of this conductor shall be at least the size of the welding process work lead, and this conductor shall not be in series with the welding process or the work piece.
- ◊ If the scaffold grounding lead is disconnected at any time, the welding machine shall be shut off.
- ◊ An active welding rod or uninsulated welding lead shall not be allowed to contact the scaffold or its suspension system.

- **Fall Protection**
  - — Fall protection issues not addressed in this procedure are covered in the AC Corporation's Fall Protection Procedure.
  - — Each employee on a scaffold more than 6 feet above a lower level shall be protected from falling to that lower level.
    - ◊ Each employee on a boatswains' chair, float scaffold or needle beam scaffold shall be protected by a personal fall arrest system.
    - ◊ Each employee on a single-point or two-point adjustable suspension scaffold shall be protected by both a personal fall arrest system and guardrail system.
    - ◊ Each employee on a self-contained adjustable scaffold shall be protected by a guardrail system (with minimum 200 pound toprail capacity) when the platform is supported by the frame structure, and by both a personal fall arrest system and a guardrail system (with minimum 200 pound toprail capacity) when the platform is supported by ropes.
    - ◊ Each employee on a walkway located within a scaffold shall be protected by a guardrail system (with minimum 200 pound toprail capacity) along both sides of the walkway.
    - ◊ For all scaffolds not otherwise specified, each employee shall be protected by the use of personal fall arrest systems or guardrail systems.
  - — AC Corporation shall have a competent person to determine the feasibility and safety of providing fall protection for employees erecting or dismantling supported scaffolds. AC Corporation is required to provide fall protection for employees erecting or dismantling supported scaffolds where the installation and use of such protection is feasible and does not create a greater hazard.
  - — In addition to meeting the requirements of fall protection, personal fall arrest systems used on scaffolds shall be attached by lanyard to a vertical lifeline, horizontal lifeline, or scaffold structural member. Vertical lifelines shall not be used when overhead components, such as overhead protection or

additional platform levels, are part of a single-point or two-point adjustable suspension scaffold.

- ◊ When vertical lifelines are used, they shall be fastened to a fixed safe point of anchorage, shall be independent of the scaffold, and shall be protected from sharp edges and abrasion. Safe points of anchorage include structural members of buildings, but do not include standpipes, vents, other piping systems, electrical conduit, outrigger beams, or counterweights. There shall only be one vertical lifeline per worker.
- ◊ When horizontal lifelines are used, they shall be secured to two or more structural members of the scaffold, or they may be looped around both suspension and independent suspension lines (on scaffolds so equipped) above the hoist and brake attached to the end of the scaffold. Horizontal lifelines shall not be attached only to the suspension ropes.
- ◊ When lanyards are connected to horizontal lifelines or structural members on a single-point or two-point adjustable suspension scaffold, the scaffold shall be equipped with additional independent support lines and automatic locking devices capable of stopping the fall of the scaffold in the event one or both of the suspension ropes fail. The independent support lines shall be equal in number and strength to the suspension ropes.
- ◊ Vertical lifelines, independent support lines, and suspension ropes shall not be attached to each other, nor shall they be attached to or use the same point of anchorage, nor shall they be attached to the same point on the scaffold or personal fall arrest system.

— Guardrail systems installed to meet the requirements of this section shall comply with the following:

- ◊ Guardrail systems shall be installed along all open sides and ends of platforms. Guardrail systems shall be installed before the scaffold is released for use by employees other than erection/ dismantling crews.
- ◊ Guardrails (toprails and midrails) shall be 2 x 4 in. or equivalent with vertical uprights not to exceed 8 foot intervals. Toeboards shall be a minimum of 4 in. in height.
- ◊ The top edge height of toprails or equivalent member on supported scaffolds manufactured or placed in service after January 1, 2000 shall be installed between 38 inches (0.97 m) and 45 inches (1.2 m) above the platform surface. The top edge height on supported scaffolds manufactured and placed in service before January 1, 2000, and on all suspended scaffolds where both a guardrail and a personal fall arrest system are required shall be between 36 inches (0.9 m) and 45 inches (1.2 m). When conditions warrant, the height of the top edge may exceed the 45-inch height, provided the guardrail system meets all other criteria of this section.

- ◊ When midrails, screens, mesh, intermediate vertical members, solid panels, or equivalent structural members are used, they shall be installed between the top edge of the guardrail system and the scaffold platform.
- ◊ When midrails are used, they shall be installed at a height approximately midway between the top edge of the guardrail system and the platform surface.
- ◊ When screens and mesh are used, they shall extend from the top edge of the guardrail system to the scaffold platform, and along the entire opening between the supports.
- ◊ When intermediate members (such as balusters or additional rails) are used, they shall not be more than 19 inches (48 cm) apart.
- ◊ Each toprail or equivalent member of a guardrail system shall be capable of withstanding, without failure, a force applied in any downward or horizontal direction at any point along its top edge of at least 100 pounds (445 n) for guardrail systems installed on single-point adjustable suspension scaffolds or two-point adjustable suspension scaffolds, and at least 200 pounds (890 n) for guardrail systems installed on all other scaffolds.
- ◊ When the loads specified above are applied in a downward direction, the top edge shall not drop below the minimum height requirements previously stated.
- ◊ Midrails, screens, mesh, intermediate vertical members, solid panels, and equivalent structural members of a guardrail system shall be capable of withstanding, without failure, a force applied in any downward or horizontal direction at any point along the midrail or other member of at least 75 pounds (333 n) for guardrail systems with a minimum 100 pound toprail capacity, and at least 150 pounds (666 n) for guardrail systems with a minimum 200 pound toprail capacity.
- ◊ Suspension scaffold hoists and non-walk-through stirrups may be used as end guardrails, if the space between the hoist or stirrup and the side guardrail or structure does not allow passage of an employee to the end of the scaffold.
- ◊ Guardrails shall be surfaced to prevent injury to an employee from punctures or lacerations, and to prevent snagging of clothing.
- ◊ The ends of all rails shall not overhang the terminal posts except when such overhang does not constitute a projection hazard to employees.
- ◊ Steel or plastic banding shall not be used as a toprail or midrail.
- ◊ Manila or plastic (or other synthetic) rope is prohibited for use as toprails or midrails.

- ◊ Crossbracing is acceptable in place of a midrail when the crossing point of two braces is between 20 inches (0.5 m) and 30 inches (0.8 m) above the work platform or as a toprail when the crossing point of two braces is between 38 inches (0.97 m) and 48 inches (1.3 m) above the work platform. The end points at each upright shall be no more than 48 inches (1.3 m) apart.

- **Falling Object Protection**

  — In addition to wearing hard-hats each employee on a scaffold shall be provided with additional protection from falling hand tools, debris, and other small objects through the installation of toeboards, screens, or guardrail systems, or through the erection of debris nets, catch platforms, or canopy structures that contain or deflect the falling objects. When the falling objects are too large, heavy or massive to be contained or deflected by any of the above-listed measures, the AC Corporation shall place such potential falling objects away from the edge of the surface from which they could fall and shall secure those materials as necessary to prevent their falling.

  — Where there is a danger of tools, materials, or equipment falling from a scaffold and striking employees below, the following provisions apply:

    ◊ The area below the scaffold to which objects can fall shall be barricaded, and employees shall not be permitted to enter the hazard area.

    ◊ A toeboard shall be erected along the edge of platforms more than 6 feet above lower levels for a distance sufficient to protect employees below, except on float (ship) scaffolds where an edging of 3/4 x 1 1/2 inch (2 x 4 cm) wood or equivalent may be used in lieu of toeboard.

    ◊ Where tools, materials, or equipment are piled to a height higher than the top edge of the toeboard, paneling or screening extending from the toeboard or platform to the top of the guardrail shall be erected for a distance sufficient to protect employees below.

    ◊ A guardrail system shall be installed with openings small enough to prevent passage of potential falling objects.

    ◊ A canopy structure, debris net, or catch platform strong enough to withstand the impact forces of the potential falling objects shall be erected over the employees below.

  — Screening used shall consist of No. 18 gage, 1/2 in. wire mesh or equivalent.

  — Canopies, when used for falling object protection, shall comply with the following criteria:

    ◊ Canopies shall be installed between the falling object hazard and the employees.

    ◊ When canopies are used on suspension scaffolds for falling object protection, the scaffold shall be equipped with additional independent

support lines equal in number to the number of points supported, and equivalent in strength to the strength of the suspension ropes.

◊ Independent support lines and suspension ropes shall not be attached to the same points of anchorage.

— Where used, toeboards shall be:

◊ Capable of withstanding, without failure, a force of at least 50 pounds (222 n) applied in any downward or horizontal direction at any point along the toeboard ;and

◊ At least three and one-half inches (9 cm) high from the top edge of the toeboard to the level of the walking/working surface. Toeboards shall be securely fastened in place at the outermost edge of the platform and have not more than 1/4 inch (0.7 cm) clearance above the walking/working surface. Toeboards shall be solid or with openings not over one inch (2.5 cm) in the greatest dimension.

**Additional Requirements Applicable to Specific Types of Scaffolds.**

- **Pole Scaffolds**

— When platforms are being moved to the next level, the existing platform shall be left undisturbed until the new bearers have been set in place and braced, prior to receiving the new platforms.

— Crossbracing shall be installed between the inner and outer sets of poles on double pole scaffolds.

— Diagonal bracing in both directions shall be installed across the entire inside face of double-pole scaffolds used to support loads equivalent to a uniformly distributed load of 50 pounds (222 kg) or more per square foot (929 square cm).

— Diagonal bracing in both directions shall be installed across the entire outside face of all double- and single-pole scaffolds.

— Runners and bearers shall be installed on edge.

— Bearers shall extend a minimum of 3 inches (7.6 cm) over the outside edges of runners.

— Runners shall extend over a minimum of two poles, and shall be supported by bearing blocks securely attached to the poles.

— Braces, bearers, and runners shall not be spliced between poles.

— Where wooden poles are spliced, the ends shall be squared and the upper section shall rest squarely on the lower section. Wood splice plates shall be provided on at least two adjacent sides, and shall extend at least 2 feet (0.6 m) on either side of the splice, overlap the abutted ends equally, and have at least the same cross-sectional areas as the pole. Splice plates of other materials of equivalent strength may be used.

- Pole scaffolds over 50 feet in height shall be designed by a registered professional engineer, and shall be constructed and loaded in accordance with that design.

- **Tube and Coupler Scaffolds**
  - When platforms are being moved to the next level, the existing platform shall be left undisturbed until the new bearers have been set in place and braced prior to receiving the new platforms.
  - Transverse bracing forming an "X" across the width of the scaffold shall be installed at the scaffold ends and at least at every third set of posts horizontally (measured from only one end) and every fourth runner vertically. Bracing shall extend diagonally from the inner or outer posts or runners upward to the next outer or inner posts or runners. Building ties shall be installed at the bearer levels between the transverse bracing.
  - On straight run scaffolds, longitudinal bracing across the inner and outer rows of posts shall be installed diagonally in both directions, and shall extend from the base of the end posts upward to the top of the scaffold at approximately a 45 degree angle. On scaffolds whose length is greater than their height, such bracing shall be repeated beginning at least at every fifth post. On scaffolds whose length is less than their height, such bracing shall be installed from the base of the end posts upward to the opposite end posts, and then in alternating directions until reaching the top of the scaffold. Bracing shall be installed as close as possible to the intersection of the bearer and post or runner and post.
  - Where conditions preclude the attachment of bracing to posts, bracing shall be attached to the runners as close to the post as possible.
  - Braces extended into walkways, which may pose a tripping hazard to personnel, should be ramped over, padded, or flagged, as necessary, to prevent injury.
  - Bearers shall be installed transversely between posts, and when coupled to the posts, shall have the inboard coupler bear directly on the runner coupler. When the bearers are coupled to the runners, the couplers shall be as close to the posts as possible.
  - Bearers shall extend beyond the posts and runners a minimum of 4 in. but not more than 12 in., and shall provide full contact with the coupler. Extension of bearers shall not protrude into walking or climbing areas, whenever possible.
  - Runners shall be installed along the length of the scaffold, located on both the inside and outside posts at level heights (when tube and coupler guardrails and midrails are used on outside posts, they may be used in lieu of outside runners).

- Runners shall be interlocked on straight runs to form continuous lengths, and shall be coupled to each post. The bottom runners and bearers shall be located as close to the base as possible.
- Couplers shall be of a structural metal, such as drop-forged steel, malleable iron, or structural grade aluminum. The use of gray cast iron is prohibited.
- Tube and coupler scaffolds over 50 feet in height shall have their design reviewed by a registered professional engineer, and shall be constructed and loaded in accordance with such design.
- Tube and coupler scaffolds over 100 feet in height shall be designed by a registered professional engineer, and shall be constructed and loaded in accordance with such design.

- **Fabricated Frame Scaffolds (Tubular Welded Frame Scaffolds)**
  - When moving platforms to the next level, the existing platform shall be left undisturbed until the new end frames have been set in place and braced prior to receiving the new platforms.
  - Frames and panels shall be braced by cross, horizontal, or diagonal braces, or combination thereof, which secure vertical members together laterally. The cross braces shall be of such length as will automatically square and align vertical members so that the erected scaffold is always plumb, level, and square. All brace connections shall be secured.
  - More than one section of diagonal braces shall not be removed from a horizontal series of sections unless at least four (4) sets of diagonal braces separate the sections to be removed.
  - Frames and panels shall be joined together vertically by coupling or stacking pins or equivalent means.
  - Where uplift can occur which would displace scaffold end frames or panels, the frames or panels shall be locked together vertically by pins or equivalent means.
  - Brackets used to support cantilevered loads shall:
  - Be seated with side-brackets parallel to the frames and end-brackets at 90 degrees to the frames.
    - Not be bent or twisted from these positions.
    - Be used only to support personnel, unless the scaffold has been designed for other loads by a qualified engineer and built to withstand the tipping forces caused by those other loads being placed on the bracket-supported section of the scaffold.
  - Scaffolds over 50 feet in height above their base plates shall have their design reviewed by a registered professional engineer, and shall be constructed and loaded in accordance with such design.

- Scaffolds over 100 feet in height above their base plates shall be designed by a registered professional engineer, and shall be constructed and loaded in accordance with such design.

- **Form Scaffolds and Carpenters' Bracket Scaffolds**

  - Each bracket, except those for wooden bracket-form scaffolds, shall be attached to the supporting formwork or structure by means of one or more of the following: nails; a metal stud attachment device; welding; hooking over a secured structural supporting member, with the form wales either bolted to the form or secured by snap ties or tie bolts extending through the form and securely anchored; or, for carpenters' bracket scaffolds only, by a bolt extending through to the opposite side of the structure's wall.

  - Wooden bracket-form scaffolds shall be an integral part of the form panel.

  - Folding type metal brackets, when extended for use, shall be either bolted or secured with a locking-type pin.

  - Brackets used on reinforcing steel walls:

    - ◊ When bracket scaffolds are used on reinforcing-steel wall installations and more than one layer of horizontal rebar has been placed, the scaffold shall be secured to an inside horizontal bar.

    - ◊ If conditions do not permit attaching the bracket scaffold to an inside horizontal bar, the scaffold shall be secured with a minimum of three 3/8-in.-diameter U-bolts attached to each end and middle of the outer horizontal or vertical bar. Also, No. 9 wire shall be placed at a minimum of every fourth tie location.

    - ◊ The horizontal reinforcing bar shall be secured to a vertical reinforcing bar that is either embedded in concrete or spliced by an approved method.

    - ◊ Each scaffold shall have a 4 ft. x 1/4 in. safety chain attached to the ends of the scaffold and secured to an inner rebar other than the bar that is supporting the scaffold.

    - ◊ Guardrails and toeboards shall be installed all open sides and ends of scaffolds.

    - ◊ No more than two workers plus necessary tools and equipment shall be permitted on a single scaffold section at any one time. The load is not to go beyond the scaffold’s designed capacity. Bracket scaffolds shall be constructed to support 1,550 lbs., and the capacity shall be posted on the scaffold.

- **Step, Platform and Trestle Ladder Scaffolds**

  - Scaffold platforms shall not be placed any higher than the second highest rung or step of the ladder supporting the platform.

- All ladders used in conjunction with step, platform and trestle ladder scaffolds shall meet the pertinent requirements of the Subpart X Construction Standards, except that job-made ladders shall not be used to support such scaffolds.
- Ladders used to support step, platform, and trestle ladder scaffolds shall be placed, fastened, or equipped with devices to prevent slipping.
- Scaffolds shall not be bridged one to another.

- **Single-Point Adjustable Suspension Scaffolds**
  - When two single-point adjustable suspension scaffolds are combined to form a two-point adjustable suspension scaffold, the resulting two-point scaffold shall comply with the requirements for two-point adjustable suspension scaffolds
  - The supporting rope between the scaffold and the suspension device shall be kept vertical unless all of the following conditions are met:
    - ◊ The rigging has been designed by a qualified person.
    - ◊ The scaffold is accessible to rescuers.
    - ◊ The supporting rope is protected to ensure that it will not chafe at any point where a change in direction occurs.
    - ◊ The scaffold is positioned so that swinging cannot bring the scaffold into contact with another surface.
  - Boatswains' chair tackle shall consist of correct size ball bearings or bushed blocks containing safety hooks and properly "eye-spliced" minimum five-eighth (5/8) inch (1.6 cm) diameter first-grade manila rope, or other rope which will satisfy the criteria (e.g., strength and durability) of manila rope.
  - Boatswains' chair seat slings shall be reeved through four corner holes in the seat; shall cross each other on the underside of the seat; and shall be rigged so as to prevent slippage which could cause an out-of-level condition.
  - Boatswains' chair seat slings shall be a minimum of five-eight (5/8) inch (1.6 cm) diameter fiber, synthetic, or other rope which will satisfy the criteria (e.g., strength, slip resistance, durability, etc.) of first grade manila rope.
  - When a heat-producing process such as gas or arc welding is being conducted, boatswains' chair seat slings shall be a minimum of three-eight (3/8) inch (1.0 cm) wire rope.
  - Boatswains’ chair seats shall be a minimum of 2 x 12 x 24 in. lumber or equivalent.
  - Non-cross-laminated wood boatswains' chairs shall be reinforced on their underside by cleats securely fastened to prevent the board from splitting.

- **Two-Point Adjustable Suspension Scaffolds (Swing Stages)**
  - Workers must be provided with a safe method of moving to and from the scaffold.
  - Workers involved with the moving of a scaffold shall be protected from falls at heights of 6 feet or greater.
  - Platforms shall not be more than 36 inches (0.9 m) wide unless designed by a qualified person to prevent unstable conditions.
  - The platform shall be securely fastened to hangers (stirrups) by U-bolts or by other means which satisfy the capacity requirements previously stated for platforms.
  - The blocks for fiber or synthetic ropes shall consist of at least one double and one single block. The sheaves of all blocks shall fit the size of the rope used.
  - Platforms shall be of the ladder-type, plank-type, beam-type, or light-metal type. Light metal-type platforms having a rated capacity of 750 pounds or less and platforms 40 feet (12.2 m) or less in length shall be tested and listed by a nationally recognized testing laboratory.
  - Two-point scaffolds shall not be bridged or otherwise connected one to another during raising and lowering operations unless the bridge connections are articulated (attached), and the hoists properly sized.
  - Passage may be made from one platform to another only when the platforms are at the same height, are abutting, and walk-through stirrups specifically designed for this purpose are used.
  - Outrigger beams, when required, should extend from 1 ft. to 6 ft. beyond the edge of the building, and the inboard length from the fulcrum should be at least 1.5 times the outboard length from the fulcrum.
- **Float (Ship) Scaffolds**
  - The platform shall be made of 3/4 in. plywood or equivalent and be supported by a minimum of two bearers, each of which shall project a minimum of 6 inches (15.2 cm) beyond the platform on both sides. Each bearer shall be securely fastened to the platform.
  - Bearers shall be made from 2 x 4 in. or 1 x 10 rough lumber. They shall be free of knots or other flaws.
  - Rope connections shall follow standard rigging practices such that the platform cannot shift or slip.
  - Rope shall be 1 in. manila rope or equivalent and shall be run diagonally underneath the platform from bearer to bearer.
  - When only two ropes are used with each float:

- ◊ They shall be arranged so as to provide four ends which are securely fastened to overhead supports.
- ◊ Each supporting rope shall be hitched around one end of the bearer and pass under the platform to the other end of the bearer where it is hitched again, leaving sufficient rope at each end for the supporting ties.

- **Interior hung scaffolds**
  - — Scaffolds shall be suspended only from the roof structure or other structural member such as ceiling beams.
  - — Overhead supporting members (roof structure, ceiling beams, or other structural members) shall be inspected and checked for strength before the scaffold is erected.
  - — Suspension ropes and cables shall be connected to the overhead supporting members by shackles, clips, thimbles, or other means that meet equivalent criteria (e.g., strength, durability).
- **Needle Beam Scaffolds**
  - — Scaffold support beams shall be installed on edge.
  - — Ropes or hangers shall be used for supports, except that one end of a needle beam scaffold may be supported by a permanent structural member.
  - — Scaffolds shall be supported by 1 in. manila rope, 1/2 in. wire rope, 1/4 in. or high test chain or equivalent, using standard hitch or eye splice, with supports on the beam not to be more than 10 ft. apart for the 4 x 6 in. timbers.
  - — Needle beams shall be construction-grade lumber with a minimum of 1,500 psi fiber strength.
  - — Maximum platform span shall not exceed 8 feet.
  - — The ropes shall be securely attached to the needle beams.
  - — The support connection shall be arranged so as to prevent the needle beam from rolling or becoming displaced.
  - — Platform units shall be securely attached to the needle beams by bolts or equivalent means. Cleats and overhang are not considered to be adequate means of attachment.
- **Multi-Level Suspended Scaffolds**
  - — Scaffolds shall be equipped with additional independent support lines, equal in number to the number of points supported, and of equivalent strength to the suspension ropes, and rigged to support the scaffold in the event the suspension rope(s) fail.

- Independent support lines and suspension ropes shall not be attached to the same points of anchorage.
- Supports for platforms shall be attached directly to the support stirrup and not to any other platform.

- **Mobile Scaffolds**
  - Scaffolds shall be braced by cross, horizontal, or diagonal braces, or combination thereof, to prevent racking or collapse of the scaffold and to secure vertical members together laterally so as to automatically square and align the vertical members. Scaffolds shall be plumb, level, and squared. All brace connections shall be secured.
    - ◊ Scaffolds constructed of tube and coupler components shall also comply with the requirements of the "tube and coupler" section of these guidelines.
    - ◊ Scaffolds constructed of fabricated frame components shall also comply with the requirements of the "welded frame scaffold" section.
  - Scaffold casters and wheels shall be locked with positive wheel and/or wheel and swivel locks, or equivalent means, to prevent movement of the scaffold while the scaffold is used in a stationary manner.
  - Manual force used to move the scaffold shall be applied as close to the base as practicable, but not more than 5 feet (1.5 m) above the supporting surface.
  - Scaffolds shall be stabilized to prevent tipping during movement.
  - The height of a manually propelled mobile scaffold shall not exceed three times its minimum base dimension.
  - Employees shall not be allowed to ride on manually propelled mobile scaffolds.
  - Platforms shall not extend outward beyond the base supports of the scaffold unless outrigger frames or equivalent devices are used to ensure stability.
  - Where leveling of the scaffold is necessary, screw jacks or equivalent means shall be used.
  - Caster stems and wheel stems shall be pinned or otherwise secured in scaffold legs or adjustment screws.

**Scaffold Erection and Dismantling Requirements**

- Workers shall keep both hands empty for secure handholds when moving above on scaffolds.
- Pockets, pouches, and tool belts shall be used to carry the necessary tools for the work to be conducted.

- Scaffold members shall be hoisted or lowered with a hand line or passed from hand to hand. Throwing items up or down to co-workers is prohibited.

**Scaffold Tagging**

- A GREEN scaffold tag indicates the scaffold is complete as defined by the manufacturer for unrestricted use.
- A YELLOW scaffold tag indicates the scaffold is not complete but is available for restricted use only. The red tag will detail the missing components and the need for a personal fall arrest system.
- A RED scaffold tag indicates the scaffold is in some way defective and can not be used.
- Scaffolds being erected, modified or dismantled shall not be tagged and can only be accessed by those involved with the process.

**Installation and Removal of Scaffold Tags**

- The responsible Site Supervisor / Foreman shall determine whether a usable scaffold receives a yellow or green tag, complete all pertinent information on the tag, and affix the appropriate tag to the scaffold erected under his/her supervision.
- The scaffold tag shall be affixed to the scaffold access ladder approximately 5 feet from the base, where it will not interfere with normal access.
- The Site Supervisor / Foreman may remove a scaffold tag from a scaffold that is deficient in any way (i.e. has been damaged, improperly modified or is missing components). RED defective tags shall be used in these circumstances.
- After a scaffold has been repaired, the Site Supervisor / Foreman shall inspect it and, as appropriate, tag the scaffold.
- Periodic inspections shall be performed by the designated competent person to assure all appropriate tags are present.

**Inspection and Testing of Scaffold Planks**

- Wooden planks used for scaffold platforms shall be scaffold grade lumber.
- Scaffold planks shall be inspected and tested upon receipt and prior to use.
- Inspections shall identify any defects, which may affect the structural integrity of the plank (i.e. decay, splits, cuts, etc.).
- Scaffold planks when loaded shall not deflect more than 1/60th the length between bearers.
- Fire-retardant treated lumber shall have a weight capacity rating of 80 to 85 percent of untreated lumber.

**Storage of Scaffolding**

Scaffolding material shall be stored in a manner that will prevent damage to the equipment.

## 5 TRAINING

**Training Requirements**

- AC Corporation shall have each employee who performs work while on a scaffold trained by a person qualified in the subject matter to recognize the hazards associated with the type of scaffold being used and to understand the procedures to control or minimize those hazards. The training shall include the following areas, as applicable:
  - The nature of any electrical hazards, fall hazards and falling object hazards in the work area.
  - The correct procedures for dealing with electrical hazards and for erecting, maintaining, and disassembling the fall protection systems and falling object protection systems being used.
  - The proper use of the scaffold, and the proper handling of materials on the scaffold.
  - The maximum intended load and the load-carrying capacities of the scaffolds used.
  - Any other pertinent requirements.
- AC Corporation shall have each employee who is involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting a scaffold trained by a competent person to recognize any hazards associated with the work in question. The training shall include the following topics, as applicable:
  - The nature of scaffold hazards.
  - The correct procedures for erecting, disassembling, moving, operating, repairing, inspecting, and maintaining the type of scaffold in question.
  - The design criteria, maximum intended load-carrying capacity and intended use of the scaffold.
  - Fall, electrical, fall objects
  - Any other pertinent requirements.
- When AC Corporation has reason to believe that an employee lacks the skill or understanding needed for safe work involving the erection, use or dismantling of scaffolds, AC Corporation shall retrain each such employee so that the requisite proficiency is regained. Retraining is required in at least the following situations:
  - Where changes at the worksite present a hazard about which an employee has not been previously trained.
  - Where changes in the types of scaffolds, fall protection, falling object protection, or other equipment present a hazard about which an employee has not been previously trained.

- Where inadequacies in an affected employee's work involving scaffolds indicate that the employee has not retained the requisite proficiency.

**List of Training Topics for Scaffold Erectors and Dismantlers**.

- AC Corporation believes that employees erecting or dismantling scaffolds should be trained in the following topics:
- General Overview of Scaffolding
  - Regulations and standards
  - Erection/dismantling planning
  - PPE and proper procedures
  - Fall protection
  - Materials handling
  - Access
  - Working platforms
  - Foundations
  - Guys, ties and braces
- Tubular Welded Frame Scaffolds
  - Specific regulations and standards
  - Components
  - Parts inspection
  - Erection/dismantling planning
  - Guys, ties and braces
  - Fall protection
  - General safety
  - Access and platforms
  - Erection/dismantling procedures
  - Rolling scaffold assembly
  - Putlogs
- Tube and Clamp Scaffolds
  - Specific regulations and standards
  - Components
  - Parts inspection
  - Erection/dismantling planning

- Guys, ties and braces
- Fall protection
- General safety
- Access and platforms
- Erection/dismantling procedures
- Buttresses, cantilevers, & bridges

- System Scaffolds
  - Specific regulations and standards
  - Components
  - Parts inspection
  - Erection/dismantling planning
  - Guys, ties and braces
  - Fall protection
  - General safety
  - Access and platforms
  - Erection/dismantling procedures
  - Buttresses, cantilevers, & bridges
- Scaffold erectors and dismantlers should all receive the general overview, and, in addition, specific training for the type of supported scaffold being erected or dismantled.

**Deviations**

Any deviations to the above described procedures must be reviewed and approved by the site safety representative.

| | |
|---|---|
| Project Name: | Job Number: |
| Completed by: | Date: |

## STATIONARY SCAFFOLD INSPECTION CHECKLIST

| | YES | NO | ACTION/COMMENTS |
|---|---|---|---|
| Scaffold components and planking in safe condition for use and planks graded for scaffold use? | | | |
| Frame spacing and sill size capable of carrying intended loading? | | | |
| Competent person in charge of erection and to inspection? | | | |
| Sills properly placed and adequate sized? | | | |
| Screw jacks been used to level and plumb scaffold instead of unstable objects? | | | |
| Base plates and/or screw jacks in firm contact with sills and frame? | | | |
| Scaffold is level and plumb? | | | |
| Scaffold legs braced with braces properly attached? | | | |
| Guard railing in place on all open sides and ends? | | | |
| Overhead protection or wire screening been provided where necessary? | | | |
| Scaffold been tied to structure at least every 30' in length and 26' in height? | | | |
| Free standing towers been guyed or tied every 26' in height? | | | |
| Brackets, tube and clamp, and accessories been properly placed with nuts and bolts tightened? | | | |
| Scaffold free of makeshift devices or ladders to increase height? | | | |
| Planks have minimum 12" overlap and extend 6" beyond supports? | | | |
| Toe boards properly installed? | | | |
| Conditions such as power lines, wind loading, etc. controlled? | | | |
| Safe way to get on and off the scaffold without climbing on cross braces? | | | |
| Front face within 14 inches of the work or within three feet for outrigger scaffolds? | | | |

## 1 PURPOSE AND SCOPE

### ■ Purpose

This procedure provides adequate safety guidelines for performing non-routine hot work (welding, cutting, or other use of a burner, torch, or arc) on the job site or equipment. A Hot Work Permit must be issued, establishing that precautions have been taken to prevent fire and that equipment is ready to extinguish any fire promptly.

### ■ Scope

This procedure applies to all AC Corporation personnel working on projects where hot work requirements are applicable. Refer to the site specific safety plan for applicability.

## 2 REFERENCES

- Title 29, Code of Federal Regulations, Parts 1910 and 1926, *Occupational Safety and Health Administration* (OSHA), U.S. Department of Labor.
- Title NFPA51B, National Fire Codes, National Fire Protection Association Standard for Fire Prevention in Use of Cutting and Welding Procedures, 1989 Edition.

## 3 GENERAL

### ■ Definitions

- *Hot Work* - Electrical arc, gas welding, brazing, cutting, grinding or other such open flame activities.
- *Restricted Areas* - Areas, inside or outside, where flammable gases, liquids and dust, or loose combustible stocks are a part of the operation, where construction consists of Class A material (wood floors, wood joists, and roofs or other combustibles), and where work involves enclosures, tanks, and equipment using flammable gases, liquid, vapors, or dusts.
- *Unrestricted Areas* - Any areas, inside or outside not falling within the meaning of the restricted areas.

### ■ Responsibilities

- The *Site Supervisor / Foreman* is responsible for implementing and enforcing this procedure.
- The *Safety Director* is responsible for monitoring compliance with this procedure.
- The *Cutter or Welder* (or other employee doing hot work) is responsible for handling equipment safely, taking care not to endanger lives and property.

## 4 PROCEDURE

### ■ Hot Work Permit

A Hot Work Permit shall be required for all hot work activities.

The permit shall be used only after the work area has been physically checked, and the necessary precautions have been taken as designated on the permit. There shall be

a further check as required for flammable gases, dust, and oxygen using the appropriate instruments.

- Prior to the start of the task, the employee performing the hot work shall examine the work site.
- The Hot Work Permit shall be posted in a conspicuous location in or adjacent to the work site for the duration of the job or shift.
- When the job is completed and the final checkup is done, the employee shall return the permit to the Site Supervisor / Foreman.
- The Hot Work Permit shall become void when the following conditions exist:
  - — At the end of each shift. If the work is to continue, a new permit shall be issued.
  - — Whenever conditions change significantly unless the Site Supervisor / Foreman approves the change **IN WRITING**.

■ **Fire Prevention Precautions**

- Hot work shall be permitted only in areas that are or have been made fire safe. If possible, hot work shall be done in specific areas designed or approved for such work, i.e., a maintenance shop or a detached outside location of noncombustible or fire-resistant construction and free of combustibles and flammable material.
- When work cannot be moved practically, the area shall be made fire safe by removing combustibles from ignition sources, wetting down the area, laying wet burlap bags over the floor, or stretching canvas or other non-combustibles that has been flame-proofed over area where work is to be performed.
- If the object to be welded or cut cannot readily be moved, all moveable fire hazards should be removed.
- If the object to be welded or cut cannot be moved and if all the fire hazards cannot be removed, then guards shall be used to confine the heat sparks and slag and to protect the immovable fire hazards.
- If the requirements stated in previous two paragraphs of this section cannot be followed the welding and cutting shall not be performed.
- Hot work shall not be permitted in buildings where fire protection is impaired; or in the presence of explosive atmospheres (mixtures of flammable gases, vapors, liquids, or dust with air); or when an explosive atmosphere may develop inside un-cleaned or improperly prepared drums, tanks, or other containers and equipment that have previously contained such materials; or in areas with an accumulation of combustible ducts.
- Before hot work is permitted, all precautions indicated on the Hot Work Permit shall be followed by the cutter or welder, etc. before work is performed. In addition. precautions shall be taken as follows:

- Ducts and conveyor systems that might carry sparks to distant combustibles shall be suitably shut down or blanked off.
- If welding is to be done on a metal wall, partition, ceiling, or roof that is in contact with combustibles that cannot be relocated, a fire watch on the other side of the work shall be provided.
- A portable spare fire extinguisher(s), appropriate for the type of possible fire, shall be located at the work area. Where hose lines are available, they shall be connected and ready for service.
- Where hot work is performed in an area involving grating floors, special precautions shall be taken to ensure that sparks or hot slag do not travel through the grating to the floors below.

- A *Fire Watch* shall be required for hot work performed in a location where more than a minor fire might develop, or when any of the following conditions exist:
  - Appreciable combustible materials or contents are closer than 35 ft (11 m) to the point of operation.
  - Appreciable combustibles are more than 35 ft (11 m) away, but are easily ignited by sparks.
  - Wall or floor openings within a 35 ft (11 m) radius expose combustible material in adjacent areas including concealed spaces in wall or floors.
  - Combustible materials are adjacent to the opposite side of metal partitions walls, ceilings, or roof and are likely to be ignited by conduction or radiation.
- The fire-watchers shall have fire extinguishing equipment and any necessary personnel protective equipment readily available and shall be trained in its use. They shall be familiar with procedures for sounding an alarm in the event of fire. In addition, fire watchers shall perform the following:
  - Watch for fires in all exposed areas and extinguish them if possible with the equipment available or otherwise sound the alarm immediately.
  - Maintain a fire watch for at least a half hour after completion of cutting or welding operations to detect and extinguish smoldering fires.

## ■ Protective Equipment and Clothing

- Use of commercially available flameproof gloves, aprons, capes, hardhats or shoulder covers, skull caps, spats, leggings, and high boots follows as required:
  - Aprons for protection against radiated sparks.
  - Capes, shoulder covers, skull caps, and if required, ear protection for overhead welding.
  - Fire resistant leggings and high boots for heavy work.

- Woolen clothing is preferable to cotton and protects against temperature change. Polyester, nylon, and other similar synthetic clothing shall be avoided. Fire resistant clothing, such as Dupont Nomex, is highly recommended.
- Long sleeves are required and shall be buttoned, cuffs and top pockets shall be avoided.
- Pants shall not be tucked into boots while performing hot work.
- Hard hat hoods are required while working in areas where there are overhead hazards, construction areas or where required by management.

■ **Oxy-Fuel Welding and Cutting**

- Employees in charge of oxygen or fuel-gas supply equipment (including distribution piping systems and generators) must be instructed and judged competent for such work.
- Oxygen cylinders shall be stored in an upright secured position 20 feet from any flammable gases or petroleum products.

■ **Arc Welding and Cutting**

- Employees assigned to operate arc-welding equipment must be properly instructed and qualified to operate such equipment.
- Employees assigned must be familiar with OSHA 29 CFR 1910.254 and with 29 CFR 1910.252(a)(b) & (c). If gas shielded arc welding is done they must be familiar with the American Welding Society Standard A6-1-1966.
- Operators of equipment should report any equipment defect or safety hazards and discontinue use of equipment until its safety has been assured. Repairs shall be made only by qualified personnel.

■ **Other Precautions**

- A mixture of combustible gases and air may be very explosive and shall be guarded against.

  Welding or cutting work shall never be supported on compressed gas cylinders or other containers.

  Any welding, cutting or burning of lead base metals, zinc, cadmium, mercury, beryllium or exotic metals or paints not listed here shall have proper ventilation or respiratory protection.
- Metal tools (even so called "sparkles" type) for making repairs or connecting tanks to regulators and gauges shall be used with caution to avoid striking a spark. Wetting the tool will make it less likely to spark when struck.
- When working in confined spaces, the space watcher and the fire watcher cannot be the same person unless fire watching can be done from outside the confined space.
- The safety aspect of welding shall be foremost when choosing arc welding equipment for a job. Unusual service conditions may exist. In such circumstances,

machines shall be especially designed to safely meet requirements of the following exposure conditions:

— Unusual corrosive fumes

— Steam or excessive humidity

— Excessive oil vapor

— Flammable gases

— Abnormal vibration or shock

— Excessive dust

— Weather

- Grounding

— The frame or case of the welding machine shall be grounded under the conditions and according to the methods prescribed in the National Electric Code and by the manufacturer.

— The work or metal upon which the operator welds shall be grounded to a satisfactory electrical ground. The work shall be located on a grounded metal floor, or by connections to a grounded building frame or other satisfactory ground. Pipelines carrying gases or flammable liquids and contents carrying electrical conductors for grounding purposes shall not be used.

— Preferably, welding current shall be returned to the welding machine by a single cable from the work to the welding machine.

— Conduits containing electrical conductors shall not be used for completing a work lead circuit.

— Chains, wire ropes, cranes, hoists, and elevators shall not be used to carry welding current.

— All ground connections shall be checked to determine that they are mechanically strong and electrically adequate for the required current.

- First aid equipment shall be available at all times.

■ **Training**

- The fire-watchers shall have fire extinguishing equipment and any necessary personnel protective equipment readily available and shall be trained in its use.
- Welders and their supervisors shall be trained in the safe operations of their equipment and the safe use of the process.

| Hot Work Permit | | |
|---|---|---|
| Date Issued | | |
| Issued By | | |
| Location of Hot Work | | |
| Type of Hot Work | Welding - Cutting - Grinding - Other | |
| **EXPIRES** | Time_____ Date _____ | |
| Job Description | | |
| **Safety Requirements -** required to be established & maintained | | |
| The person issuing this permit has required the following safety precautions and indicated by his initials that the following circled items have been established prior to issuing this permit | | Initials of Issuing Authority |
| No flammables/combustibles within 35 feet | | |
| Charged Extinguisher at work area | | |
| Fire Watch (es) briefed & stationed | | |
| Adequate ventilation established | | |
| Welding curtains or shields | | |
| Respirators used | | |
| Hot Work Personal Protective Equipment | | |
| Warning signs posted | | |
| Welding / cutting equipment inspected | | |
| Certified Welder | | |
| Surrounding equipment is Locked Out | | |
| No flammable / combustible gasses in area | | |
| Confined Space Entry Permit Issued | | |
| Access to work area controlled | | |
| | | |
| Task Started | Time_____ | Date _____ |
| Task Completed | Time_____ | Date _____ |
| Fire Watch Secured | Time_____ | Date _____ |
| | | |
| | | |
| Permit Ended | Time_____ | Date _____ |
| **Return Completed Permit to:** | | |
| | | |

## 1 PURPOSE AND SCOPE

### Purpose

This procedure provides guidance to maintaining a safe and healthful workplace in the event of an infectious disease outbreak.

### Scope

This procedure applies to all AC Corporation personnel.

## 2 REFERENCES

None

## 3 GENERAL

AC Corporation will take proactive steps to protect the workplace in the event of an infectious disease outbreak. Employees are encouraged to engage in good hygiene practices while at work, especially hand washing with soap and water or, if water is not available, using alcohol-based disposable hand wipes or gel sanitizers. Employees are encouraged and reminded to clean all area that is likely to have frequent hand contact, doorknobs, faucets, handrails routinely and when visibly soiled. Working surfaces should be cleaned more frequently than usual. Employees are also encouraged to participate in the AC Corporation Wellness Program which provides annual influenza shots for employees.

The Safety Committee will be designated to monitor and coordinate events around an infectious disease outbreak, as well as create work rules that could be implemented to promote safety through infection control. AC Corporation is committed to providing authoritative information about the nature and spread of infectious diseases, including symptoms and signs to watch for, posters, as well as required steps to be taken in the event of an illness or outbreak.

Any employee wishing to work at home during a pandemic shall discuss with his/her immediately supervisor the possibilities of working from home. Each supervisor must carefully evaluate the needs of the department and decide whether the employee is capable to work at home.

Short Term Disability is provided in an effort to make all reasonable attempts to ensure that employees are not present at attend the workplace while displaying symptoms of illness or if subject to quarantine directives.

Immunization is our very best defense against disease. Other practical measures such as quarantine, sanitation, hygiene, proper food handling, and changes in lifestyle vary in their prevention potential, depending on the disease. Living a healthy lifestyle and providing our bodies with good nutrition keeps us strong, but many people who do both of these are still susceptible and fall ill with colds, flu, or other contagious diseases when outbreaks occur. For this reason, AC Corporation encourages employees to obtain an annual vaccination to help prevent disease.

It is the goal of AC Corporation, during any time period of quarantine or infectious disease outbreak, to strive to operate effectively and ensure that all essential services are continuously provided and that employees are safe within the workplace.

Employees are instructed to maintain a social distance by reducing the frequency, proximity, and duration of contact between people (both employees and customers) and also not gathering in large groups.

A flu pandemic may have an impact on any or all of the following:

- Cancellation of scheduled vacations;
- Approval of overtime;
- Re-assignment of staff to a different department or branch;
- Additional use of part-time staff;

Disease containment and expectation are shared with employees via company's newsletters. Newsletters are sent out to all employees via the Intranet periodically, more frequently during fall and winter seasons, to keep employees abreast of preventing a disease outbreak and to remind employees to practice good hygienic procedures. Hard copies of the newsletters are stuffed in paystub envelopes for employees that do not have access to the Intranet.

During an unexpected event, AC Corporation plans to continue to communicate with customers and suppliers. The President will communicate with customers and suppliers, on how the epidemic will impact AC Corporation's ability to perform services and when business is to resume, based on the current information.

## 1 PURPOSE AND SCOPE

### ■ Purpose

This procedure provides the minimum requirements for creating and maintaining safe excavation operations, including hand digging and some concrete breaking operations.

### ■ Scope

This procedure applies to all AC Corporation personnel and subcontractors working on projects where excavation safety requirements are applicable.

## 2 REFERENCES

- Title 29, Code of Federal Regulations, Parts 1910 and 1926, *Occupational Safety and Health Administration* (OSHA), U.S. Department of Labor.

## 3 GENERAL

This procedure applies to all excavations with special emphasis placed on energized utilities, where there is a possibility for the excavating equipment and/or tools to come into contact with such utilities because the exact location and/or depth of the utilities has not been determined. The same application of this procedure is to be followed when breaking into concrete floors, walls, or ceilings, at or in the immediate vicinity where utilities are encased.

The primary hazards associated with excavations are the potential for cave-ins and the accidental contact or displacement of existing underground installations, with the accompanying risk potential of personal injury and/or property damage.

The Supervisor in charge of the work shall determine, in accordance with this procedure, what steps are necessary to ensure a safe excavation. If required by the General Contractor, an Excavation Permit shall be completed by the Supervisor/Competent Person in charge of the work prior to the start of any excavation work. A review of soil conditions should be a prime factor in determining whether to shore, slope, or shield the excavation.

### ■ Definitions

- *Accepted Engineering Practices* - Those requirements which are compatible with standards of practice required by a registered professional engineer.
- *Aluminum Hydraulic Shoring* - A pre-engineered shoring system comprised of aluminum hydraulic cylinders (cross braces) used in conjunction with vertical rails (uprights) or horizontal rails (walers). Such system is designed to support the sidewalls of an excavation and prevent cave-ins.
- *Bell-bottom Pier Hole* - A type of shaft or footing excavation, the bottom of which is made larger than the cross section above to form a belled shape.
- *Benching* (Benching System) - A method of protecting employees from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels.
- *Cave-in* - The separation of a mass of soil or rock material from the side of an excavation, or the loss of soil from under a trench shield or support system, and its

sudden movement into the excavation, either by falling or sliding, in sufficient quantity so that it could entrap, bury, or otherwise injure and immobilize a person.

- *Competent Person* - One who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.
- *Cross Braces* - The horizontal members of a shoring system installed perpendicular to the sides of the excavation, the ends of which bear against either uprights or wales.
- *Excavation* - Any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal.
- *Faces or Sides* - The vertical or inclined earth surfaces formed as a result of excavation work.
- *Failure* - The breakage, displacement, or permanent deformation of a structural member or connection to reduce its structural integrity and its supportive capabilities.
- *Hazardous Atmosphere* - An atmosphere which, by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen deficient, toxic, or otherwise harmful, may cause death, illness, or injury.
- *Kickout* - The accidental release or failure of a shore or cross brace.
- *Protective System* - A method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or into an excavation, or from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems, and other systems that provide the necessary protection.
- *Ramp* - An inclined walking or working surface that is used to gain access to one point from another and is constructed from earth or from structural material such as steel or wood.
- *Registered Professional Engineer* - A person who is registered as a professional engineer in the state where the work is to be performed. However, a professional engineer registered in any state is deemed to be a "registered professional engineer" within the meaning of this procedure when approving designs for "manufactured protective systems" or "tabulated data" to be used in interstate commerce.
- *Sheeting* - The members of a shoring system that retain the earth in position and, in turn, are supported by other members of the shoring system.
- *Shield (Shield System*) - A structure that is able to withstand the forces imposed on it by a cave-in and thereby protect employees within the structure. Shields can be permanent structures or can be designed to be portable and moved along as work progresses. Shields used in trenches are usually referred to as "trench boxes" or "trench shields."

- *Shoring (Shoring System)* - A structure, such as a metal, hydraulic, mechanical, or timber shoring system, that supports the sides of an excavation and which is designed to prevent cave-ins.
- *Sloping (Sloping System)* - A method of protecting employees from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation to prevent cave-ins. The angle of incline required to prevent a cave-in varies with differences in such factors as the soil type, environmental conditions of exposure, and application of surcharge loads.
- *Stable Rock* - Natural solid mineral material that can be excavated with vertical sides and will remain intact while exposed. Unstable rock is considered to be stable when the rock material is secured against caving in or movement by rock bolts or by another protective system that has been designed by a registered professional engineer.
- *Structural Ramp* - A ramp built of steel or wood, which is usually used for vehicle access. Ramps made of soil or rock are not considered structural ramps.
- *Support Systems* - A structure such as underpinning, bracing, or shoring which provides support to an adjacent structure, underground installations, or the sides of an excavation.
- *Tabulated Data* - Tables and charts approved by a registered professional engineer and used to design and construct a protective system.
- *Trench (Trench Excavation)* - A narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet. If forms or other structures are installed or constructed in an excavation so as to reduce the dimension measured from the forms or structure to the side of the excavation to 15 feet or less (measured at the bottom of the excavation), the excavation is also considered to be a trench.
- *Trench Box* - See "Shield."
- *Trench Shield* - See "Shield."
- *Uprights* - The vertical members of a trench shoring system placed in contact with the earth and usually positioned so that members do not contact each other. Uprights placed so that individual members are closely spaced, in contact with or interconnected to each other, are often called "sheeting."
- *Wales* - Horizontal members of a shoring system placed parallel to the excavation face whose sides bear against the vertical members of the shoring system or earth.

## Responsibilities

- The *Job Site Supervisor / Foreman* is responsible for implementing and enforcing this procedure.
- The *Safety Representative* is responsible for monitoring compliance with this procedure.

- The *Supervisor/Foreman*, who initiates/directs the excavation work, is responsible for ensuring the following:
  - — All workers have been educated in the hazards associated with the specific excavation.
  - — All workers have been trained in the proper use of all personal protective equipment being used or required at the excavation site.
  - — All preparatory work is conducted as set forth by this procedure before any worker enters the excavation.
  - — Excavation work is performed as required by this procedure.
  - — If required, an Excavation Permit has been issued and properly completed by all necessary personnel.
- The *Competent Person* is responsible for completing the Excavation Permit and ensuring the following:
  - — Performing inspections prior to the start of "each shift" as needed throughout the shift to ensure a safe operation.
  - — Removing employees from the hazardous area when there is evidence of a possible cave-in.
  - — Identifying and correcting hazards associated with the excavation.

## 4 PROCEDURE

The minimum requirements of this procedure, as set forth in the 29CFR 1926.650-652 Construction Excavation Standards by the Federal Occupational Safety and Health Administration (OSHA), are quite extensive and therefore must be reviewed thoroughly by those responsible for enforcement, administration, monitoring, and implementation prior to commencement of any work task involving excavation.

### Surface Encumbrances

Ensure that all surface encumbrances, located so as to create a hazard to employees or become subject to physical damage, are removed, supported, or neutralized, as necessary, prior to the start of any excavation work.

### Underground Installations

- When it is necessary to excavate, drill, or break into ground, floors, walls, or other locations where utility installations may exist, the supervisor in charge of the work shall be responsible for reviewing all existing drawings and prints for the location of such lines.
- Utility companies or owners shall be contacted within established or customary local response time, advised of proposed work, and asked to establish the exact location of the underground utility installations prior to the start of actual excavation. When utility companies or owners cannot respond to a request to locate underground utility installations within 24 hours (unless a longer period is required by state or local statute), or cannot establish the exact location of existing installations, the Site Supervisor may direct the work to proceed, provided effort is

made to do so with caution and provided detection equipment or other acceptable means to locate utility installations are used.

- Determine the estimated location of utility installations, such as sewer, telephone, fuel, electric, water lines, gas lines, or any other underground installation that may be expected to be encountered during excavation, prior to opening an excavation.

  Grade stakes and reference markers shall be placed for positive location of the area to be excavated and depth requirements.

- When excavation operations approach the estimated location of underground installations, the exact location of the installation shall be determined by safe and acceptable means. It will be the responsibility of the Site Supervisor in charge of the work to determine what special precautions should be taken to ensure the safety of employees and property.

- Energized lines shall be located by manual digging when there is a possibility of damaging them with mechanical excavation equipment. Some of the lines encountered may have to be locked and tagged out for employee safety. Tools and equipment may have to be grounded and insulation provided for employees when electrical exposure is possible. Should the work involve the excavation of an area to uncover a gas leak, good ventilation and the use of nonsparking tools shall be required.

- While an excavation is open, all underground installations shall be protected, supported, or removed, as necessary, to safeguard employees and adequately protect the installations from damage.

**Access and Egress**

- A stairway, ladder, ramp, or other safe means of egress shall be located in trench excavations that are 4 feet or more in depth so that no more than 25 feet of lateral travel is required for employees.

- Structural ramps that are used solely by employees as a means of access or egress from excavation shall be designed by a Competent Person.

- Structural ramps used for access or egress of equipment shall be designed by a competent person qualified in structural design and shall be constructed in accordance with the design.

- Ramps and runways constructed of two or more structural members shall have the structural members connected together to prevent displacement.

- Structural ramps used in lieu of steps shall be provided with cleats or other surface treatments on the top surface to prevent slipping.

- Structural members used for ramps and runways shall be of uniform thickness. Cleats or other appropriate means used to connect runway structural members shall be attached in a manner to prevent tripping.

**Exposure to Vehicular Traffic**

All employees exposed to public vehicular traffic shall be provided with, and shall wear, warning vests or other suitable garments marked with or made of reflectorized or high-visibility material.

**Exposure to Aboveground Electrical Systems**

Unless deenergized and visibly grounded or provided with an effective insulating barrier, heavy equipment, tools, or individuals shall not operate/work within 10 feet (minimum distance - refer to 29 CFR 1926.550 (a) (15) of any power line or exposed electrical distribution component.

**Exposure to Falling Loads**

Employees shall not be permitted to be underneath loads handled by lifting or digging equipment. Employees shall be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials.

**Warning Systems for Mobile Equipment**

When mobile equipment is operated adjacent to an excavation, or when such equipment is required to approach the edge of an excavation, and the operator does not have a clear and direct view of the edge of the excavation, a warning system, such as barricades, hand or mechanical signals, or stop logs, shall be utilized. Where possible, the grade should be away from the excavation.

**Hazardous Atmospheres**

To prevent employee exposure to harmful levels of atmospheric contaminants and to ensure acceptable atmospheric conditions within excavations, the following requirements shall be met:

- Prior to allowing employees to enter an excavation where oxygen deficiency or a hazardous atmosphere exists or could reasonably be expected to exist, such as in landfill areas or excavations in areas where hazardous substances are stored nearby, the atmospheres in excavations greater than 4 feet in depth shall be tested.
- It shall be ascertained by air sampling performed by a competent person that the atmospheres in the excavations contain an adequate quantity of oxygen and that harmful contaminants have been diluted to safe concentrations prior to, and periodically during, occupancy.
- The acceptable oxygen concentration range for excavation entry is 20.5-23.5 percent.
- The concentration of flammable gases or vapors shall be less than 10 percent of the lower explosive limit (LEL).
- Tests for toxic substances shall be made whenever there is a possibility that the excavation contains or may have contained a toxic substance. Test results shall be within the limits established by OSHA's permissible exposure level (PEL) or ACGIH-TLVs.
- If any test conducted indicates that the atmosphere is unsafe, before any employee is permitted to enter the excavation, the space shall be ventilated until the

concentration of hazardous substance is reduced to a safe level or removed. Ventilation shall be continued as long as recurrence of the hazard is probable.

- Emergency rescue equipment, such as breathing apparatus, a safety harness and line, or a basket stretcher, shall be readily available where hazardous atmospheric conditions exist or may reasonably be expected to develop during work in an excavation. This equipment shall be attended when in use.
- Employees entering bell-bottom pier holes, or other similar deep and confined footing excavations, shall wear a harness with a lifeline securely attached to it. The lifeline shall be separate from any line used to handle materials and shall be individually attended at all times while the employee wearing the lifeline is in the excavation.

**Protection from Water Accumulation**

- Employees shall not work in excavations in which there is accumulated water or in excavations in which water is accumulating unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation. The precautions necessary to protect employees adequately vary with each situation, but could include special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water, or use of a safety harness and lifeline.
- If water is controlled or prevented from accumulating by the use of water removal equipment, the water removal equipment and operations shall be monitored by the supervisor or engineer designated as the competent person to ensure proper operation.
- Diversion ditches, dikes, or other suitable means shall be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation. Excavations subject to runoff from heavy rains require an inspection by the supervisor or engineer designated as the competent person.

**Stability of Adjacent Structures**

- Where the stability of adjoining buildings, walls, or other structures is endangered by excavation operations, support systems shall be provided, such as shoring, bracing, or underpinning to ensure the stability of such structures.
- Excavation below the level of the base or footing of any foundation or retaining wall that could be reasonably expected to pose a hazard to employees shall not be done unless:
  - — A support system, such as underpinning, is provided to ensure the safety of employees and the stability of the structure; or
  - — The excavation is in stable rock; or
  - — A registered professional engineer has determined that the structure is sufficiently removed from the excavation so that it will be unaffected by the excavation activity; or
  - — A registered professional engineer has determined that such excavation work will not pose a hazard to employees.

- Sidewalks, pavements and appurtenant structures shall not be undermined unless a support system or another method of protection is provided to protect employees from the possible collapse of such structures. The support system shall be capable of withstanding a minimum live load of 125 lb/ft.

**Protection of Employees from Loose Rock or Soil**

- Employees shall be adequately protected from loose rock or soil that could pose a hazard by falling or rolling from an excavation face. Such protection shall consist of scaling to remove loose material, installing protective barricades at intervals as necessary on the face to stop and contain falling material, or providing other means of equivalent protection.
- Employees shall be protected from excavated or other materials or equipment that could pose a hazard by falling or rolling into excavations. Protection shall be provided by placing and keeping such material or equipment a minimum of 2 feet from the edge of excavations, by the use of retaining devices that are sufficient to prevent materials or equipment from falling or rolling into excavations, or by a combination of both if necessary.

**Inspections**

- The individual designated as the Competent Person shall conduct daily inspections of excavations, the adjacent areas, and protective systems for evidence of possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions.
- An inspection shall be conducted by the Competent Person prior to the start of "each shift" and as needed throughout the shift to ensure a safe operation. Inspections shall also be made after every rainstorm or other hazard-increasing occurrence.
- Where the Competent Person finds evidence of a situation that could result in a possible cave-in, failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed employees shall be removed from the hazardous area until the necessary precautions have been taken to ensure their safety.
- Workers shall be adequately instructed to immediately report any signs or indications of weakness in shoring, sloping, or soil stability to responsible supervision.

**Fall Protection**

- Where equipment or employees are required or permitted to cross over excavations, AC Corporation shall provide walkways or bridges with standard guardrails. Where the potential exists for exposed ends of a walkway or bridge to create a tripping hazard, it shall be appropriately provided with beveled cleating. Additionally, the walkway or bridge shall have a safety factor of at least four times the intended load.
- Adequate barrier physical protection shall be provided at all remotely located excavations. All wells, pits, shafts, etc., shall be barricaded or covered. Upon completion of exploration and similar operations, temporary wells, pits, shafts, etc., shall be backfilled.

- Where workers are employed adjacent to an excavation on work other than that directly involving the excavation, protection such as standard guardrails (or equivalent protection) shall be provided to eliminate the potential of fall exposure.

**Protection of Employees**

Each employee shall be protected in an excavation from cave-in by an adequate protective system designed in accordance with this procedure except when excavations are made entirely in stable rock; or excavations are less than 5 feet in depth and examination of the ground by the supervisor or engineer designated as the competent person provides no indication of a potential cave-in.

Protective systems shall have the capacity to resist without failure all loads that are intended or could reasonably be expected to be applied or transmitted to the system.

**Design of Sloping and Benching**

**Systems**

The slopes and configurations of sloping and benching systems shall be selected and constructed in accordance with one of the following options:

- *Option 1* - If no attempt is made to determine soil type, excavations shall be sloped at an angle not steeper than one and one-half horizontal to one vertical (34 degrees measured from the horizontal). This angle represents the worst soil condition (Type C) and therefore requires the use of configurations that are in accordance with the slopes shown for Type C soil in Appendix B of this procedure.
- *Option 2* - Maximum allowable slopes and allowable configurations for sloping and benching systems shall be determined in accordance with the conditions and requirements set forth in Appendices A and B of this procedure.
- *Option 3* - Design of sloping or benching systems shall be selected from and be in accordance with tabulated data. The tabulated data shall be in written form and shall include all of the following:

  — Identification of the parameters that affect the selection of a sloping or benching system drawn from such data.

  — Identification of the limits of use of the data, to include the magnitude and configuration of slopes determined to be safe.

  — Explanatory information as may be necessary to aid the user in making a correct selection of a protective system from the data.

  A copy of the tabulated data, which identifies the registered professional engineer who approved the data, shall be maintained at the jobsite during construction and use of the protective system.

- *Option 4* - Sloping and benching systems not utilizing Options 1, 2, or 3 above shall be approved by a registered professional engineer. All such designs shall be in written form and include the following:

  — The magnitude of the slopes that were determined to be safe for the particular project.

— The configurations that were determined to be safe for the particular project.

— The identity of the registered professional engineer approving the design.

A copy of the design shall be maintained at the jobsite during construction and use of the system.

**Design of Support Systems, Shield Systems, and Other Protective Systems**

Design of support systems, shield systems, and other protective systems shall be selected and constructed in accordance with one of the following options:

- *Option 1* - Design of timber shoring in trenches shall be in accordance with the conditions and requirements set forth in Appendices A and C. Designs for aluminum hydraulic shoring shall be in accordance with Appendix D if the provisions of Option 2 cannot be met.
- *Option 2* - Design of support systems, shield systems, or other protective systems that are drawn from manufacturer's tabulated data shall be in accordance with all specifications, recommendations, and limitations issued or made by the manufacturer. Deviations shall only be allowed after the manufacturer issues specific written approval. All information pertaining to the design shall be in written form at the jobsite during construction and use of the protective system.
- *Option 3* - Design of support systems, shield systems, or other protective systems using tabulated data shall be in written form and shall include the following:

  — Identification of the parameters that affect the selection of a sloping or benching system drawn from such data.

  — Identification of the limits of use of the data, to include the magnitude and configuration of slopes determined to be safe.

  — Explanatory information as may be necessary to aid the user in making a correct selection of a protective system from the data.

  A copy of the tabulated data, which identifies the registered professional engineer who approved the data, shall be maintained at the jobsite during construction and use of the protective system.
- *Option 4* - Design of support systems, shield systems, or other protective systems not utilizing Option 1, 2, or 3 above shall be approved by a registered professional engineer. All designs shall be in written form and include the following:

  — A plan indicating the sizes, types, and configurations of the materials to be used in the protective system.

  — The identity of the registered professional engineer approving the design.

  A copy of the design shall be maintained at the jobsite during construction and use of the protective system.

**Materials and Equipment**

- Ensure that all materials and equipment used for protective systems are free from damage or defects that might impair their proper function.

- Manufactured materials and equipment used for protective systems shall be used and maintained in a manner that is consistent with the recommendations of the manufacturer and in a manner that will prevent employee exposure to hazards.
- Any materials or equipment that are damaged will be assessed by the supervisor or engineer designated as the competent person as to its suitability for continued use.

**Installation and Removal of Supports**

- Members of support systems shall be securely connected together to prevent sliding, falling, kickouts, or other predictable failure.
- Support systems shall be installed and removed in a manner that protects employees from cave-ins, structural collapses, or from being struck by members of the support system.
- Individual members of support systems shall not be subjected to loads exceeding their designed capacity.
- Before removal of individual members begins, the need for additional precautionary measures to ensure the safety of employees shall be evaluated by a competent person. Such measures may include the installation of other structural members to carry the loads imposed on the support system.
- Removal operations shall begin at, and progress from the bottom of the excavation. Members shall be released slowly so as to note any indication of possible failure of the remaining members or possible cave-in of the sides of the excavation.
- Backfilling shall progress together with the removal of support systems from excavations.

**Additional Requirements for Support Systems for Trench Excavations**

- The depth of trench excavations may extend to a maximum of 2 feet below the bottom of the members of a support system, provided the system is designed to resist the forces calculated for the full depth of the trench and there are no indications, while the trench is open, of a possible loss of soil from behind or below the bottom of the support system.
- Installation of support systems shall be closely coordinated with the excavation of trenches.
- Employees shall not be permitted to work on the faces of sloped or benched excavations at levels above other employees unless employees at the lower levels are protected from the hazards of falling, rolling, or sliding material or equipment.

**Shield Systems**

- Shield systems shall not be subjected to loads exceeding those which the system was designed to withstand.
- Shields shall be installed in a manner to restrict lateral or other hazardous movement of the shield in the event of the application of sudden lateral loads.
- Employees shall be protected from the hazard of cave-ins when entering or exiting the areas protected by shields.

- Employees shall not be allowed in shields when shields are being installed, removed, or moved vertically.
- The depth of trench excavations may extend to a maximum of 2 feet below the bottom of a shield, provided the shield is designed to resist the forces calculated for the full depth of the trench and there are no indications, while the trench is open, of a possible loss of soil from behind or below the bottom of the shield.

## 1 PURPOSE AND SCOPE

### ■ Purpose

This procedure is to be used as a comprehensive instructional guide that applies to forklift also known as Industrial Powered Truck (IPT), Powered Industrial Truck (PIT) and are regulated under the OSHA Powered Industrial Truck Standard, 29 CFR 1910.178. All workers who utilize a forklift at AC Corporation or on an AC Corporation job site must adhere to this program. This policy is applicable to both daily operators and those who occasionally use a powered industrial truck.

### ■ Scope

This procedure applies to all AC Corporation personnel and subcontractors working on projects where powered industrial truck safety requirements are applicable.

## 2 REFERENCES

- Title 29, Code of Federal Regulations, Parts 1910 and 1926, *Occupational Safety and Health Administration* (OSHA), U.S. Department of Labor.
- 29 CFR 1910.178 Powered Industrial Truck

## 3 GENERAL

### EQUIPMENT INSTRUCTIONS

Each unit shall have a manual containing instructions for maintenance and operations. If a unit is able to be operated in different configurations, then these shall be clearly described, including the rated capacity of each configuration.

Each device placed in service shall have a conspicuously displaced legible plate or other legible marking verifying that the machine is designed and manufactured in accordance with specifications in conformance with 29CFR 1910.67.

### ■ Definitions

- **Backrest:** Supports the load when tipped back and adds stability.
- **Carriage:** The part of the mast where the forks and backrest are mounted.
- **Counterbalance Forklifts:** Designed for both indoor and outdoor use, counterbalance truck wheels as their center of gravity and can be powered by battery, propane, gasoline or diesel fuel.
- **Full-tapered Forks:** Forks that gradually increase in thickness from the tip of the fork all the way back to the fork's heel (rear). Full-tapered forks are used to lift lighter loads.
- **Half-tapered forks:** Forks that gradually increase in thickness from the tip of the fork (front) to about midway back where the blade reaches its maximum thickness. Half-tapered forks are used to lift heavier loads.
- **Identification Plate:** Contains information about the truck's design and capacity including information about the truck's engine, load capacity, serial number, weight and the truck's type designation. The identification plate may also contain additional information specific to that type of truck.

- **Lift Cylinders:** Hydraulically operated single acting cylinders used to lift the carriage.
- **Load Center:** The distance from the heels of the forks to the load's center of gravity.
- **Mast:** The mechanism on the truck that raises and lowers the load. The mast is made up of a set of tracks that house bearings and chains.
- **Material Handling:** Any activity that involves picking up and moving materials, parts and/or finished products.
- **Powered Industrial Truck:** An industrial vehicle used to carry, push, pull, lift or stack material that is powered by an electric motor or an internal combustion engine. Included are vehicles that are commonly referred to as forklift trucks, rider trucks, motorized or powered hand trucks, pallet trucks and tugs. Not included are compressed air or nonflammable compressed gas-operated industrial trucks, farm vehicles or vehicles intended primarily for earth moving or over-the-road hauling.
- **Powered Pallet Jack:** A type of powered industrial truck designed to move palletized materials. These trucks may be called *walkies*, or *walkie riders*.
- **Overhead Guard:** A guard over the operator's head that protects the operator from falling debris. **Note:** The overhead guard is not designed to withstand the full impact of falling objects.
- **Rated Capacity:** The maximum weight that the truck is designed to lift as determined by the manufacture. To lift the maximum rated capacity, the load must be as close as possible to the drive wheels. The rated capacity of a truck can be found on the Identification Plate on the vehicle and/or in the manufacture's operator manual.
- **Side Stability:** Refers to the truck's ability to resist tipping sideways under various loaded and unloaded conditions.
- **Tilt Cylinders:** Hydraulically operated double acting cylinders used to tilt the backrest and forks. Tilt cylinders work in both forward and backward directions.
- **Type designation:** Refers to the truck's power source (diesel, gas, electric or liquefied propane gas) and if the truck is equipped with any additional safeguards to the exhaust, fuel and/or electrical systems. The designation will also indicate any locations where the truck may not be used such as in atmospheres containing flammable vapors or dusts.

## DEFINITION OF TERMS

The following terms are associated with the design, type and use of powered industrial trucks:

- **Backrest:** Supports the load when tipped back and adds stability.
- **Carriage:** The part of the mast where the forks and backrest are mounted.
- **Counterbalance Forklifts:** Designed for both indoor and outdoor use, counterbalance truck wheels as their center of gravity and can be powered by battery, propane, gasoline or diesel fuel.
- **Full-tapered Forks:** Forks that gradually increase in thickness from the tip of the fork all the way back to the fork's heel (rear). Full-tapered forks are used to lift lighter loads.

- **Half-tapered forks:** Forks that gradually increase in thickness from the tip of the fork (front) to about midway back where the blade reaches its maximum thickness. Half-tapered forks are used to lift heavier loads.
- **Identification Plate:** Contains information about the truck's design and capacity including information about the truck's engine, load capacity, serial number, weight and the truck's type designation. The identification plate may also contain additional information specific to that type of truck.
- **Lift Cylinders:** Hydraulically operated single acting cylinders used to lift the carriage.
- **Load Center:** The distance from the heels of the forks to the load's center of gravity.
- **Mast:** The mechanism on the truck that raises and lowers the load. The mast is made up of a set of tracks that house bearings and chains.
- **Material Handling:** Any activity that involves picking up and moving materials, parts and/or finished products.
- **Powered Industrial Truck:** An industrial vehicle used to carry, push, pull, lift or stack material that is powered by an electric motor or an internal combustion engine. Included are vehicles that are commonly referred to as forklift trucks, rider trucks, motorized or powered hand trucks, pallet trucks and tugs. Not included are compressed air or nonflammable compressed gas-operated industrial trucks, farm vehicles or vehicles intended primarily for earth moving or over-the-road hauling.
- **Powered Pallet Jack:** A type of powered industrial truck designed to move palletized materials. These trucks may be called *walkies*, or *walkie riders*.
- **Order Picker:** A type of truck designed to allow the operator to ride up and down the load so that individual items can be pulled form a rack or storage self.
- **Overhead Guard:** A guard over the operator's head that protects the operator from falling debris. **Note:** The overhead guard is <u>not</u> designed to withstand the full impact of falling objects.
- **Rated Capacity:** The <u>maximum</u> weight that the truck is designed to lift as determined by the manufacture. To lift the maximum rated capacity, the load <u>must</u> be as close as possible to the drive wheels. <u>The rated capacity of a truck can be found on the Identification Plate on the vehicle and/or in the manufacture's operator manual.</u>
- **Side Stability:** Refers to the truck's ability to resist tipping sideways under various loaded and unloaded conditions.
- **Tilt Cylinders:** Hydraulically operated double acting cylinders used to tilt the backrest and forks. Tilt cylinders work in <u>both</u> forward and backward directions.
- **Type designation:** Refers to the truck's power source (diesel, gas, electric or liquefied propane gas) and if the truck is equipped with any additional safeguards to the exhaust, fuel and/or electrical systems. The designation will also indicate any locations where the truck may <u>not</u> be used such as in atmospheres containing flammable vapors or dusts.

The following definitions are used to help to explain the principle of stability

A detailed explanation of stability is located in **Appendix E**

- **Center of Gravity** is a point on an object at which all of the object's weight can be considered to be concentrated.
- **Counterweight** is the weight that is a part of the truck's basic structure that is used to offset the load's weight and to maximize the vehicle's resistance to tipping over.
- **Fulcrum** is the truck's axis of rotation when it tips over.
- **Grade** is a surface's slope that is usually measured as the number of feet of rise or fall over a hundred foot horizontal distance (measured as a per cent).
- **Lateral stability** is a truck's resistance to tipping over sideways.
- **Line of action** is an imaginary line through an object's center of gravity.
- **Load center** is the horizontal distance from the load's edge (or the fork's or other attachment's vertical face) to the line of action through the load's center of gravity.
- **Longitudinal stability** is the truck's resistance to overturning forward or rearward.
- **Moment** is the product of the object's weight times the distance form a fixed point. In the case of a powered industrial truck, the distance is measured from the point that the truck will tip over to the object's line of action. The distance is always measured perpendicular to the line of action.
- **Track** is the distance between wheels on the vehicle's same axle.
- **Wheelbase** is the distance between the centerline of the vehicle's front and rear wheels.

■ **Responsibilities**

- The Job Site Superintendent or Foreman is responsible for implementing, enforcing and monitoring this procedure in their job site.
- The *Safety Director* is responsible for training compliance with this procedure.
- *Powered Industrial Truck Operators* are responsible for:
    1. Operating powered industrial trucks in a safe manner.
    2. Inspecting powered industrial trucks at the beginning of each work shift and completing the appropriate inspection forms or verifying inspection and inspection form were completed.
    3. Reporting equipment defects and/or maintenance needs to their supervisors immediately.

## 4 PROCEDURE

### POWERED INDUSTRIAL TRUCK RULES FOR SAFETY

The following is a list of safety rules pertaining to the operation of a powered industrial truck.

**Truck Operations:**

- A safe distance will be maintained from the edge of ramps or platforms while on any elevated dock, platform or freight car.
- When leaving the truck unattended, the forks will be fully lowered the controls placed in neutral, the power shut off, the brakes set to and the key or connector plug removed. The wheels will be blocked if the truck is parked on an incline. **Note:** A powered industrial truck is considered unattended when the operator is 25 feet or more away from the vehicle which remains in his/her view or whenever the operator leaves the vehicle and the truck is not in view.
- When the operator of an industrial truck is dismounted and within 25 ft. of the truck still in his view, the load engaging means shall be fully lowered, controls neutralized, and the brakes set to prevent movement.
- Trucks will not be used to open or close freight doors.
- The brakes of trucks, trailers and railroad cars will be set and wheel chocks or stops will be in place to prevent movement during loading or unloading operations. Fixed jacks may be necessary to support a semi-trailer during loading or unloading when the trailer is not coupled to a tractor. The flooring of trucks, trailers and railroad cars will be checked by the operator for breaks and weakness before driving these vehicles into these surfaces.
- An overhead guard will be used as protection against falling objects. **Note:** The overhead guard is intended to offer protection from the impact of small packages, boxes or bagged materials only.
- A load backrest extension will be used whenever necessary to minimize the possibility of the load or part of the load from falling rearward.
- Fire doors, access to stairways, fire extinguishers and emergency exits will always be kept clear.
- Only approved industrial trucks will be used in hazardous conditions.
- Powered industrial trucks will not be driven up to anyone standing in front of a bench or other fixed object.
- No person will be allowed to stand or pass under the elevated portion of any truck, whether loaded or empty.
- Passengers are not permitted to ride on powered industrial trucks unless authorized and the truck is equipped with a safe place for the passenger to ride.
- The operator will never place his/her arms or legs between the uprights of the mast or outside the running lines of the truck.
- The operator will never push one load with another load.
- Spinner knobs must not be attached to the steering handwheels of trucks not originally equipped with such knobs.
- Never lift people on the forks of a powered industrial truck unless the truck has a properly designed safety platform securely attached to the lifting carriage and/or forks. If the truck is equipped with vertical controls only, or vertical and horizontal controls elevatable with the lifting carriage or forks, means will be provided whereby personnel on the platform can shut off power

to the truck. Protection from falling objects as indicated necessary by the operating conditions will also be provided.

- Safety platforms, firmly secured to the lifting carriage and/or forks, shall be used.

**Traveling:**

- Traffic regulations will be observed, including observing all STOP SIGNS and authorized plant speed limits.
- A safe distance of approximately three truck lengths from the truck ahead will be maintained whenever possible.
- The "Right of Way" will be yielded to ambulances or other vehicles in emergency situations.
- The operator will slow down and sound the horn at intersections and other locations where vision is obstructed.
- 
- If the load being carried obstructs forward view, the operator will travel in reverse with the load trailing.
- Railroad tracks will be crossed diagonally whenever possible. Parking closer than 8 feet from the center of railroad tracks is prohibited.
- Grades will be ascended or descended slowly. When ascending or descending grades in excess of 10 percent, loaded trucks will be driven with the load upgrade. Unloaded trucks will be operated on all grades with the load engaging means downgrade. On all grades, the load and load engaging means will be tilted back and raised only as far as necessary to clear the road surface.
- The operator will slow down for wet and slippery floors.
- Dockboards or bridgeplates will be properly secured before they are driven over and their rated capacity will never be exceeded. Dockboards or bridgeplates will always be driven over carefully and slowly.
- Elevators will be approached slowly and then entered squarely after the elevator car is properly leveled. Once on the elevator, the transmission will be in neutral, the engine shut off and the brakes set to prevent movement.
- Motorized hand trucks must always enter elevators with the load end forward.
- When making turns, the operator will reduce the truck's speed to a safe level by means of turning the hand steering wheel in a smooth, sweeping motion. Except when maneuvering at a very low speed, the hand steering wheel shall be turned at a moderate, even rate.
- Other trucks traveling in the same direction or at intersections, blind spots or other dangerous locations will not be passed.
- Horseplay and stunt driving, including spinning of the tires, is not permitted.
- Running over loose objects in aisleways will be avoided.
- Under all travel conditions, the truck will be operated at a speed that will permit the truck to be brought to a stop in a safe manner.
- The operator will always look in the direction of travel and keep a clear view of the path of travel.

- Railroad tracks will be crossed diagonally whenever possible.

**Loading/Stacking:**

- Only stable and safely arranged loads will be handled. Use extreme caution when handling off-centered loads that cannot be centered on the forks.
- Only loads within the rated capacity of the truck will be handled.
- The forks will be placed under the load as far as possible and the mast carefully titled backward to stabilize the load.
- Extreme care will be used when tilting the load forward or backward especially when high tiering. Tilting forward with load engaging means elevated shall be prohibited except to pick up a load. An elevated load will not be tilted forward except when the load is in a deposit position over a rack or stack of material.
- When stacking or tiering loads, the operator will tilt the load backward only enough to stabilize the load.
- The operator will remove unsafe containers and pallets from service.
- Trucks equipped with attachments will be operated as a partially loaded truck when not handling a load.
- The operator will adjust long and high loads, including multiple-tiered loads that may affect the capacity of the truck.
- The operator will insure there is always a safe distance between the mast and overhead lights, pipes and sprinkler systems.

**Maintenance of the Truck:**

- Powered industrial trucks will be inspected before being placed in service. This inspection will be made at least daily. Trucks used on a round-the-clock basis will be inspected after each shift.
- If at any time during the driver's shift a truck is found to be in unsafe, the operator will immediately notify his/her supervisor and remove the truck from service until it has been restored to safe operating condition.
- Fuel tanks shall not be filled while the engine is running. Spillage shall be avoided.
- Spillage of excess oil or fuel will be carefully cleaned up and disposed off in accordance with state and federal regulations. Appropriate authorities will be notified if required by law. Fuel cap must be replaced before restarting the engine.
- The operator will always wear the proper personal protective equipment when fueling the truck or performing any other maintenance on the truck.
- No truck will be operated with a leak in the fuel system until the leak has been corrected.
- Open flames will not be used to check the electrolyte level in batteries or the gasoline level in the fuel tank.
- Smoking is not allowed while changing LPG tanks, refueling gas powered trucks or changing or charging batteries for electric powered vehicles.

**EQUIPMENT INSPECTION AND MAINTENANCE**

- The operator will conduct an examination of the truck before the vehicle is placed into service. This inspection must be made at least daily. When trucks are used on a round-the-clock basis, each truck will be inspected after each shift. *The results of these inspections will be documented on a Powered Industrial Truck Inspection Checklist.
- The operator will immediately notify his/her supervisor if the truck is found to be in need of repair and/or unsafe.
- If repairs are needed on a powered industrial truck that prevent its safe operation, the truck will be taken out of service until the repairs have been made.
- Repairs must be made by authorized personnel only.
- When the temperature of any part of any truck is found to be in excess its normal operating temperature, the vehicle must be removed from service and not returned to service until the cause for the overheating has been eliminated.
- Any vehicle that emits hazardous sparks, flames or smoke from the exhaust system will be removed from service and not returned from service until the cause for the hazardous emissions has been corrected.
- Powered industrial trucks are to be kept in a clean condition and free of excess lint, oil, and grease. Only noncombustible agents should be used for cleaning trucks. Cleaning trucks with low flash point solvents (below 100 degrees Fahrenheit) is not permitted.
- Precautions regarding toxicity, ventilation, personal protective equipment and fire hazards are to be followed as stated on the warning label and/or the Material Safety Data Sheet (MSDS) for that particular cleaning agent.
- Parts used in any industrial truck requiring replacement will be replaced only with parts equal in safety to those parts originally provided by the manufacturer.

## 5 TRAINING

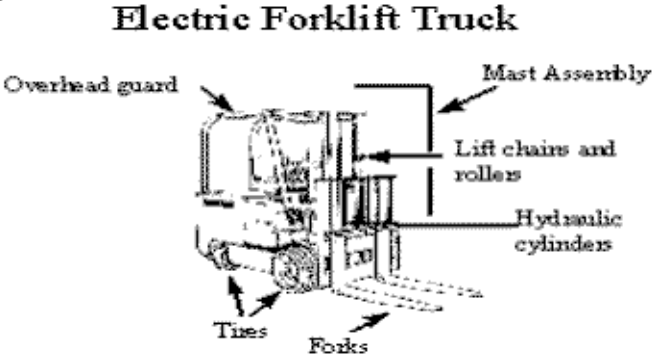
- Only employees who have successfully completed training in accordance with 1910.178(l) will be permitted to operate a powered industrial truck
- Training will consist of a combination of formal instruction (lecture, discussion videotape program written material) practical training (demonstrations performed by the trainer and practical exercises performed by the trainee, and evaluation of the operator's performance in the workplace.
- Operator training and evaluation will be conducted by persons who have the knowledge, training, and experience to train powered industrial truck operators and evaluate their competence.
- The formal (classroom) training will include a review/discussion of the following topics:
    - ✓ The factors that affect the stability of the truck.
    - ✓ The safe operation of powered industrial trucks.
    - ✓ Truck controls and instrumentation; where they are located, what they do and how they work.
    - ✓ The similarities and differences between powered industrial trucks and automobiles.

- ✓ Steering and Maneuvering.
- ✓ The proper techniques of battery charging and refueling.
- ✓ The inspection of powered industrial trucks.
- ✓ Vehicle capacity.
- ✓ Load manipulation, stacking and unstacking.
- ✓ Pedestrian traffic in areas where the vehicle will be operated.
- ✓ Narrow aisles and other restricted places where the vehicle will be operated.
- ✓ Other unique and potentially hazardous environmental conditions in the workplace that could affect the safe operation of the vehicle.

- Refresher training in relevant topics will be provided to the operator when:
  - ✓ The operator has been observed to operate the vehicle in an unsafe manner.
  - ✓ The operator has been involved in an accident or near-miss incident.
  - ✓ The operator has received an evaluation that reveals that the operator is not operating the truck safely.
  - ✓ The operator is assigned to drive a different type of truck.
  - ✓ A condition in the workplace changes in a manner that could affect safe operation of the truck.
- An evaluation of each IPT operator's performance will be conducted at least once every three years.
- If an operator has previously received training and the training is appropriate to the truck and working conditions encountered, additional training in that topic is not required if the operator has been evaluated and found competent to operate the truck safely.
- Training will be documented. Training certification will contain each employee's name, the date of training and the name of the instructor.

# Appendix A-1

## POWERED INDUSTRIAL TRUCK INSPECTION CHECKLIST
## ELECTRIC FORKLIFT




**TRUCK NO:** _____

**Hour meter Reading:** _____

| Check each item | Condition | | Explain below if not OK |
|---|---|---|---|
| | OK | Not OK | |
| **KEY OFF PROCEDURES** | | | |
| Overhead guard | | | |
| Hydraulic Cylinders | | | |
| Mast assembly | | | |
| Lift chains and rollers | | | |
| Forks | | | |
| Tires | | | |
| Battery | | | |
| Hydraulic Fluid level | | | |
| | | | |
| **KEY ON PROCEDURES** | | | |
| Hour meter gauge | | | |
| Battery discharge indicator | | | |
| Steering | | | |
| Brakes | | | |
| Front, tail and brake lights | | | |
| Horn | | | |
| Safety seat | | | |
| Seat belts | | | |
| Load handling attachments | | | |

**Additional Remarks:**

_____

_____

**Inspected by:** _____

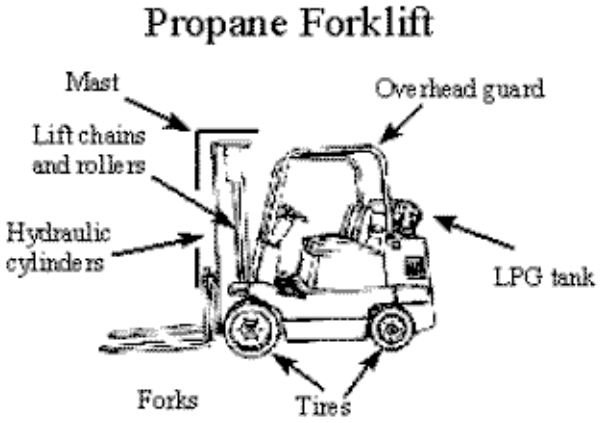
**Date:** _____

# Appendix A-2

## POWERED INDUSTRIAL TRUCK INSPECTION CHECKLIST
## PROPANE FORKLIFT

**TRUCK NO: _____**

**Hour meter Reading: _____**




| Check each item | Condition | | Explain below if not OK |
|---|---|---|---|
| | OK | Not OK | |
| **KEY OFF PROCEDURES** | | | |
| Overhead guard | | | |
| Hydraulic Cylinders | | | |
| Mast assembly | | | |
| Lift chains and rollers | | | |
| Forks | | | |
| Tires | | | |
| LPG Tank and Locator pin | | | |
| LPG tank hose | | | |
| Gas gauge | | | |
| Battery | | | |
| Hydraulic Fluid level | | | |
| Engine oil level | | | |
| Engine coolant level | | | |
| | | | |
| **KEY ON PROCEDURES** | | | |
| Front, tail and brake lights | | | |
| Oil pressure indicator lamp | | | |
| Ammeter indicator lamp | | | |
| Hour meter | | | |
| Water temperature gauge | | | |

| Check each item | Condition | | Explain below if not OK |
|---|---|---|---|
| | OK | Not OK | |
| **KEY ON PROCEDURES** | | | |
| Steering | | | |
| Brakes | | | |
| Horn | | | |
| Safety seat (if equipped) | | | |
| Load handling attachments | | | |
| Transmission fluid level | | | |
| | | | |

**Additional Remarks:**

_____

_____

**Inspected by:** _____

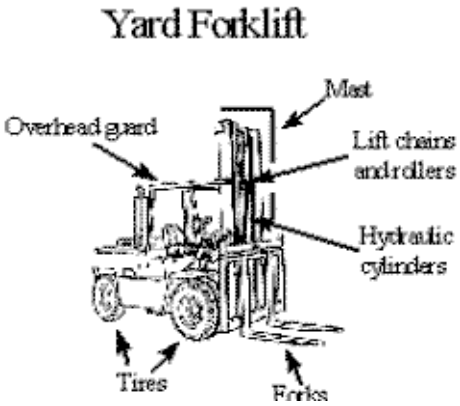
**Date:** _____

# Appendix A-3

## POWERED INDUSTRIAL TRUCK INSPECTION CHECKLIST
## YARD FORKLIFT

**TRUCK NO: _____**

**Hour meter Reading: _____**




| Check each item | Condition | | Explain below if not OK |
|---|---|---|---|
| | OK | Not OK | |
| **KEY OFF PROCEDURES** | | | |
| Overhead guard | | | |
| Hydraulic Cylinders | | | |
| Mast assembly | | | |
| Lift chains and rollers | | | |
| Forks | | | |
| Tires | | | |
| LPG tank and locator pin | | | |
| LPG tank hose | | | |
| Gas gauge | | | |
| Engine oil level | | | |
| Battery | | | |
| Hydraulic fluid level | | | |
| Engine coolant level | | | |
| | | | |
| **KEY ON PROCEDURES** | | | |
| Front, tail and brake lights | | | |
| Fuel gauge (if diesel) | | | |
| Windshield wiper | | | |

| Check each item | Condition | | Explain below if not OK |
|---|---|---|---|
| | OK | Not OK | |
| **KEY ON PROCEDURES** | | | |
| (with engine running) | | | |
| Oil pressure indicator lamp | | | |
| Ammeter indicator lamp | | | |
| Ammeter | | | |
| Hour meter | | | |
| Water temperature gauge | | | |
| Steering | | | |
| Brakes | | | |
| Horn | | | |
| Safety seat (if equipped) | | | |
| Load-handling attachments | | | |
| Transmission fluid levels | | | |
| | | | |
| | | | |

**Additional Remarks:**

_____

_____

**Inspected by:** _____

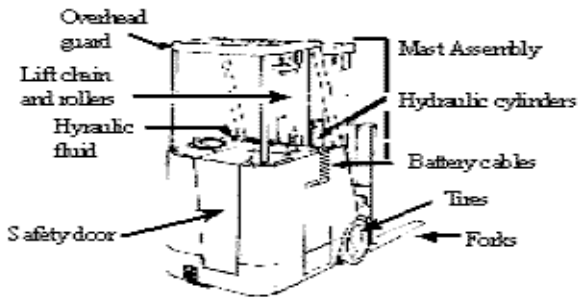
**Date:** _____

# Appendix A-4

## POWERED INDUSTRIAL TRUCK INSPECTION CHECKLIST
## ELECTRIC TRANSTACKER

**TRUCK NO: _____**

**Hour meter Reading: _____**




| Check each item | Condition | | Explain below if not OK |
|---|---|---|---|
| | OK | Not OK | |
| **KEY OFF PROCEDURES** | | | |
| Overhead guard | | | |
| Hydraulic Cylinders | | | |
| Mast assembly | | | |
| Lift chains and rollers | | | |
| Forks | | | |
| Tires | | | |
| Battery cables | | | |
| Safety door | | | |
| | | | |
| **KEY ON PROCEDURES** | | | |
| Hour meter gauge | | | |
| Battery discharge indicator | | | |
| Steering brakes | | | |
| Lights | | | |
| Horn | | | |
| Control lever | | | |
| Load handling attachments | | | |
| | | | |
| | | | |

**Additional Remarks:**

_____

_____

**Inspected by:** _____

**Date:** _____

# Appendix A-5

## GENERIC CHECKLIST FOR POWERED INDUSTRIAL TRUCKS

- **Overhead Guard** - Are there broken welds, missing bolts, or damaged areas?
- **Hydraulic Cylinders** - Is there leakage or damage on the lift, tilt, and attachment functions of the cylinders?
- **Mast Assembly** - Are there broken welds, cracked or bent areas, and worn or missing stops?
- **Lift Chains and rollers**
  - Is there wear or damage or kinks, signs of rust, or any sign that lubrication is required?
  - Is there squeaking?
- **Forks**
  - Are they cracked or bent, worn, or mismatched?
  - Is there excessive oil or water on the forks?
- **Tires**
  - What do the tires look like?
  - Are there large cuts that go around the circumference of the tire?
  - Are there large pieces of rubber missing or separated from the rim?
  - Are there missing lugs?
  - Is there bond separation that may cause slippage?
- **Battery Check**
  - Are the cell caps and terminal covers in place?
  - Are the cables missing insulation?
- **Hydraulic Fluid - Check level?**
- **Gauges - Are they all properly working?**
- **Steering**
  - Is there excessive free play?
  - If power steering, is the pump working?
- **Brakes**

  If pedal goes all the way to the floor when you apply the service brake, that is the first indicator that the brakes are bad. Brakes should work in reverse, also.

Does the parking brake work? The truck should not be capable of movement when the parking brake is engaged.

- **Lights** - If equipped with lights, are they working properly?
- **Horn** - Does the horn work?
- **Safety seat** - if the truck is equipped with a safety seat is it working?
- **Load Handling Attachments**
  - Is there hesitation when hoisting or lowering the forks, when using the forward or backward tilt, or the lateral travel on the side shift?
  - Is there excessive oil on the cylinders?
- **Propane Tank** - Is the tank guard bracket properly positioned and locked down?
- **Propane Hose**
  - Is it damaged? It should not be frayed, pinched, kinked, or bound in any way.
  - Is the connector threaded on squarely and tightly?
- **Propane Odor** - If you detect the presence of propane gas odor, turn off the tank valve and report the problem.
- **Engine Oil** - Check levels.
- **Engine Coolant** - Visually check the level.

  Note: Never remove the radiator cap to check the coolant level when the engine is running or while the engine is hot. Stand to the side and turn your face away. Always use a glove or rag to protect your hand.
- **Transmission Fluid** - Check levels?
- **Seat Belts** - Do they work?

# General Contractor/Subcontractor Safety Compliance

**Section 27**

## 1 PURPOSE AND SCOPE

### ■ Purpose

AC Corporation has a strong commitment of providing a safe environment for their associates, clients, the public, and extends this commitment to all subcontractors.

### ■ Scope

This procedure applies to all AC Corporation project locations whenever subcontractors are to be utilized to perform any work activities. The safety and health criteria set forth in this section reflect the minimum requirements. Additional safety and health requirements may be set forth on a project specific basis and may be implemented under project specific, contractual, and/or Environmental Health & Safety Site Specific, requirements.

## 2 REFERENCES

- 29 CFR Part 1910
- 29 CFR Part 1926

## 3 GENERAL

### ■ Definitions

**None**

### ■ Responsibilities

- The *Safety Director* and the *Subcontract Administrator* is responsible for the administration, implementation and management of this AC Corporation Safety Program.
- The *Site Project Manager* is responsible for ensuring his respective site supervision actively promotes and enforces this Safety Program.
- The *Site Superintendent* is responsible for ensuring his respective subordinate supervision actively promotes and enforces this Safety Program.

The *Subcontractor* is responsible for directing any questions, to the subcontract administrator, that may arise during the bid stage, concerning the requirements of this section or any other sections of the Safety manual.

Subcontractors are required to comply with the 29 CFR 1926 and 1910, where applicable, as are all contractors. This occupational Safety and Health Guide is strictly a guideline to aid in the understanding of OSHA Standards.

The General Contractor shall observe 29 CFR 1926 and 1910, where applicable, as the governing regulations for all projects unless Local or State regulations are more stringent and legally supercede the Federal Regulations. In those instances, the regulations which legally supersede will be observed.

The General Contractor shall implement a Disciplinary Plan for the employees working for the General Contractor and all subcontractors working on site.

## 1 PURPOSE AND SCOPE

### Purpose

This procedure provides the guidelines to perform a Safety Task Analysis.

The Safety Task Analysis (STA) is an effective management technique for identifying hazardous conditions and unsafe acts in the workplace. A STA is intended to analyze the individual steps or activities, which together create a job or specific work duty, and to detect any actual or potential hazards that may be present. This process can identify less obvious potential hazards that may go undetected during routine management observations or audits.

A new STA must be completed every day, before commencement of any work activity and updated in the event of changing conditions. It should be understood that changing conditions that a work crew encounters during a work period (inclement weather, another contractor began work in area, etc.) requires that the STA be modified to address the new hazards. The STA should be changed to reflect new conditions in the task being performed or new hazards not identified previously.

### Scope

This procedure applies to all employees of AC Corporation.

## 2 REFERENCES

- AC Corporation Employee's Safety Handbook.
- "Job Hazard Analysis", U.S. Dept. of Labor -- OSHA Publication No. 3071

## 3 APPENDIXES

Appendix A, STA form

## 4 GENERAL

### Definitions

- **HAZARD** - A potential danger. Oil on the floor is a hazard.
- **ACCIDENT** - An unintended happening that may result in injury, loss or damage.

  **EXAMPLE** - Slipping on the oil is an accident.
- **INJURY -** The result of an accident. A sprained wrist from the fall would be an injury.

### Responsibilities

- The *Job Supervisor* is responsible for implementing and enforcing this procedure.
- The *Safety Director* is responsible for monitoring compliance with this procedure.
- Each *Employee* is responsible for complying with the project safety program, along with the rules and regulations as stipulated in the Employees Safety Handbook and instructions issued by the employee's supervisor.

## 5 PROCEDURE

### ■ General Requirements

**SAFETY TASK ANALYSIS**

Safety Task Analysis is a procedure used to review job methods and uncover hazards:

- That may have been overlooked in the layout or design of the equipment, tools, processes or work area.
- That may have developed after production started.
- That may have resulted from changes in work procedures or personnel

**The four basic steps in performing a Safety Task Analysis are**

- Select the job to be analyzed.
- Break the job down into successive steps or activities and observe how these actions are performed.
- Identify the hazards and potential accidents.
- (This is the critical step because only an identified problem can be corrected or eliminated.)
- Develop safe job procedures to eliminate the hazards and prevent potential accidents.
- **Methods of Conducting STA's**

  There are two basic methods for conducting the Safety Task Analysis:

  — Direct observation

  — Group discussion

A fast and efficient method of conducting a STA is through direct observations of job performance. In many instances, however, this method may not be practical or desirable.

For instance, new jobs and those that are done infrequently do not lend themselves to direct observation. When this is the case, the STA can be made through discussions with persons familiar with the job. Individuals often involved in the process include, but are not limited to, first line supervisors, safety specialists, engineers, experienced employees and outside contractors.

- **Selecting Jobs to be Analyzed**

  When selecting jobs to be analyzed, most people start with the worst first.

  You should be guided by the following factors:

- **Frequency of Accidents** (Including "near misses"):

A job that repeatedly produces accidents is a candidate for a STA. The greater the number of incidents associated with a job, the greater its priority claim for a STA.

- **New or Revised Jobs**:

Jobs created by changes in equipment or in processes obviously have no history of accidents, but their accident potential may not be fully appreciated. Analysis should not be delayed until accidents or near misses occur.

**Multiple Employee Exposure**

Jobs that expose more than one individual to potential hazards should also be analyzed.

**Job Observation**

- Select the right person to observe
- Brief him / her on the purpose of the Safety Task Analysis
- Observe the person perform the job and try to break it down into basis steps
- Record each step
- Check the breakdown with the person involved

It is important to select an experienced, capable and cooperative person who is willing to share ideas. If the employee has never participated in a Safety Task Analysis, explain to him / her the purpose -- to make a job safe by identifying and eliminating or controlling hazards -- and show him / her a completed Safety Task Analysis.

**Five Common Errors**

Five common errors that are often made when performing a job analysis are:

- Making the breakdown so detailed that an unnecessarily large number of steps are listed.
- Making the job so general that basic steps are not recorded.
- Failure to identify the education and experience level of the target audience.
- Failure to identify end use(s). (i.e., training, actual procedure, basis for procedure, etc.)
- Supervisor filling out the STA.
- Supervisor should describe work scope to the crew. The crew should then identify hazards and controls at the jobsite with help from Supervisor as needed.

**Identifying the Hazards and Potential Accidents**

The purpose is to identify all hazards, both **physical** and **environmental**. To do this, ask yourself these questions about each step:

- Is there a danger of striking against, being struck by, or otherwise making harmful contact with an object?
- Can the employee be caught in, on, by or between objects?
- Is there a potential for a slip, trip or fall? If so, will it be on the same elevation or to a different elevation?
- Can he strain himself by pushing, pulling, lifting, bending or twisting?
- Is the Environmental hazardous to one's safety or health?

**Accident Types**

- Struck by
  - moving or flying object
  - falling material
- Struck against
  - stationary or moving object
  - protruding object
  - sharp or jagged edge
- Contact with
  - acid
  - electricity
  - heat
  - caustic
  - cold
  - radiation
  - toxic and noxious substances
- Caught
  - in
  - on
  - between
- Fall to
  - same level
  - lower level
- Overexertion / repetitive
  - lifting
  - pulling

  - pushing
  - reaching
  - twisting
- Rubbed or abraded by
  - friction
  - pressure
  - vibration
- Bodily reaction from
  - voluntary motion
  - involuntary motion

**Writing Instructions**

- Put any qualifying statements first, not last.
- Start each instruction with an action word.
- Each instruction should be observable.
- Each instruction should be measurable.

When evaluating a given procedure, ask the following question.

**"What should the employee do -- or not do -- to eliminate this particular hazard or prevent this potential accident?"**

- Answer must be specific and concrete to be beneficial. General precautions such as "be careful", "use caution" or "be alert" are useless. Answers should state what to do and how to do it.

This recommendation, "Make certain the wrench does not slip or cause loss of balance" is incomplete. It does not tell how to prevent the wrench from slipping. Here is a more complete recommendation. "Set the wrench properly and securely. Test its grip by exerting a slight pressure on it. Brace yourself against something immovable, or take a stance with feet wide apart before exerting full pressure. This prevents loss of balance if the wrench slips."

- Job Safety Analyses can be very beneficial if they are performed correctly. They not only result in a safer job, but also increase productivity and eliminate waste. Take the time to do them correctly; **and more importantly, use them.**

**Develop Solutions**

The final step in conducting a STA is to develop a recommended safe job procedure to prevent the occurrence of potential accidents. The principle solutions are:

- Find a new way to do the job.
- Change the physical conditions that create the hazard.

- Try to eliminate remaining hazards by changing work methods or procedures.
- Try to reduce the necessity of doing a job, or at least the frequency that it must be performed.

## 6. SPECIFIC REQUIREMENTS

- **Instructions for Completing Safety Task Analysis Form**

Safety Task Analysis (STA) is an important accident prevention tool that works by finding hazards and eliminating or minimizing them before the job is performed, and before they have a chance to become accidents.

Use your STA for job clarification and hazard awareness

- as a guide in new employee training
- for periodic contacts and for retraining of senior employees
- as a refresher on jobs which run infrequently
- as an accident investigation tool
- Informing employees of specific job hazards and protective measures.

**Sequence of Basic Job Steps**

Break the job down into steps. Each of the steps of a job should accomplish some major task. The task will consist of a set of movements used to perform a task, and then determine the next logical set of movements.

For example, the job might be to move a box from a conveyor in the receiving area to a shelf in the storage area. How does that break down into job steps? Picking up the box from the conveyor and putting it onto a hand-truck is one logical set of movements, so it is one job step.

Everything related to that one logical set of movements is part of that job step. The next logical set of movements might be pushing the loaded hand truck to the storeroom. Removing the boxes from the truck and placing them on the shelf is another logical set of movements. And finally, returning the hand truck to the receiving area might be the final step in this type of job.

***Be sure to list all the steps in a job.*** Some steps might not be done each time -- checking the casters on a hand truck, for example. However, that task is part of the job as a whole, and should be listed and analyzed.

**Potential Hazards**

Identify the hazards associated with each step. Examine each step to find and identify hazards -- actions, conditions and possibilities that could lead to an accident. It's not enough to look at the obvious hazards. It's also important to look at the entire Environmental and discover every conceivable hazard that might exist.

- Be sure to list health hazards as well, even though the harmful effect may not be immediate. A good example is the harmful effect of inhaling a solvent or chemical dust over a long period of time.

- **It's important to list all hazards**.
- Hazards contribute to accidents, injuries and occupational illnesses. In order to do part three of a STA effectively, you must identify potential and existing hazards. That's why it's important to distinguish between a hazard, an accident and an injury. Each of these terms has a specific meaning:

  Some people find it easier to identify possible accidents and illnesses and work back from them to the hazards. If you do that, you can list the accident and illness types in parentheses following the hazard. But be sure you focus on the hazard for developing recommended actions and safe work procedures.

**Recommended Action or Procedure**

Decide what actions are necessary to eliminate or minimize the hazards that could lead to an accident, injury or occupational illness. Among the actions that can be taken are:

1) engineering the hazard out
2) administrative controls
   - job instruction training
   - good housekeeping
   - good ergonomics

     (Positioning the person in relation to the machine or other elements in the Environmental in such a way as to eliminate stresses and strains)
3) providing personal protective equipment

- List recommended safe operating procedures on the form, and also list required or recommended personal protective equipment for each step of the job.
- Be specific. Say exactly what needs to be done to correct the hazard, such as "lift, using your leg muscles." Avoid general statements like "be careful."
- Give a recommended action or procedure for every hazard.
- If the hazard is a serious one, it should be corrected immediately.

The STA should be changed to reflect new conditions in the task being performed or new hazards not identified previously.

# AC Corporation

## Daily Safety Task Analysis (STA)

Contractor Name: _____

Supervisor's Name: _____

Date Issued: _____

Job Description: _____

_____

Location of Work: _____

_____

Has the requirement for special procedures, training or permits been reviewed? YES | NO

Check all applicable boxes below.

| | | | |
|---|---|---|---|
| ☐ | Confined Space Entry | Barricades / Signs | ☐ |
| ☐ | Excavation | Hazardous Atmosphere | ☐ |
| ☐ | Hot Work | Electrical Hazard | ☐ |
| ☐ | Lock out / Tag out | Chemical Hazard | ☐ |
| ☐ | Line Breaking | Scaffolding | ☐ |
| ☐ | Critical Lift Plan | Forklift | ☐ |
| ☐ | Lifting / Lowering | Vessel Entry | ☐ |
| ☐ | Fire Extinguishers | Other (specify) | ☐ |

Specific PPE: List all required

Check all applicable boxes below.

| | | | |
|---|---|---|---|
| ☐ | Hard Hat | Fall Protection | ☐ |
| ☐ | Safety Glasses | Hearing Protection | ☐ |
| ☐ | Welding Lens | Foot Protection | ☐ |
| ☐ | Face Shield | Respirator | ☐ |
| ☐ | Hand Protection | Dust Mask | ☐ |
| ☐ | Welding Screens | Fire Extinguisher | ☐ |

*Review the safety hazards and proper work methods with the crew doing the work each day. Each person working in the crew must sign in to acknowledge receiving proper instruction. Each person must also sign out and indicate any incidents that may have occurred before leaving the Project.*

**ALL injuries must be reported to your supervisor immediately!**

## STA CHECKLIST

1. Should the Safety Department be involved in the planning of this job? YES | NO
2. Have employees been briefed on the hazards associated with this job? YES | NO

   List Hazards: _____

   _____

   _____
3. Emergency and rescue equipment located in the following areas: _____

   _____

   _____
4. Have MSDS been reviewed with employees for possible chemicals present? YES | NO
5. Will weather conditions affect the safe performance of this job? YES | NO
6. Other specific instructions: _____

   _____

   _____

*I have been briefed on the correct procedures for doing this job, and fully understand the hazards and safe work methods to avoid the hazards.*

Sign in signatures

_____

_____

_____

_____

_____

_____

_____

_____

*I have completed this job in a safe manner without damage to property or injury to myself or others.*
IF NOT, PLEASE EXPLAIN IN DETAIL AT THE BOTTOM.

Sign out signatures

_____

_____

_____

_____

_____

_____

_____

_____

Comments: _____

_____

_____

_____

**ALL injuries must be reported to your supervisor immediately!**

DATE: _____

| IN | | OUT | |
|---|---|---|---|
| | | | |
| | | | |
| | | | |